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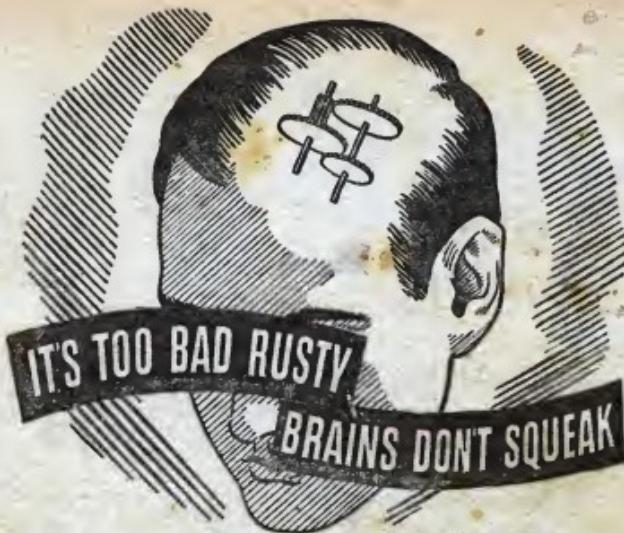
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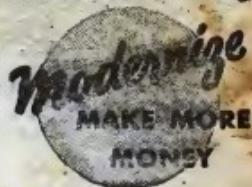
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TREASURE

by Manley Wade

*She was the clinging-vine type—she clung like
ace space-pilot Drury Bannion*

PULAMBAR is the official pleasure city of Mars—but I felt mighty unpleasant, standing on the sky-walk under the stars, outside one of those happy-shops in the high towers. My blood raced; my knuckles tingled—and I'd lost a swell flying job.

Let me start over. Resting after a long haul to Jupiter, I headed for Pulambar. It's a dainty spot—spires and skyscrapers and domes, rising from a silver lake of the only open water Mars can show. At canal-level, gondolas and shops and crowds, all glittering; up above, along the spiderwebby sky-walks that join everything, theaters and show-places and happy-joints of all kinds. An attendant at my dorm-tower must have guessed I wanted to see things, so he recommended me to this place full of music, pretty Terrestrial girls, drinks from all the planets, and a nine-rayed joy-lamp that drove your senses zig-zag with its liquory light.

A fat grub in a gold-cloth tunic made a pass at a singing-girl. She screamed, and I liked her voice; so in I stepped and clouted the guy. Down he went, and slimy Martian bouncers grabbed me. When Fatty got up again, I learned that he was Martian traffic boss of Spaceways, Inc. He knew me—most executives knew Drury Banion, their third best ship-wrangler—and he told me I was fired. Then they threw me out.

I walked along one of the metal gangways, scowling far up at the sparky stars and far down at the sweet colors and

the water. Gondolas and people looked like nutshells and ants, and the waterways no wider than my finger. I heard a voice, like a timid little bugle, behind me. "Oh, Captain Banion—you fought for me, and how can I thank—"

It was the singing-girl. She'd followed me, still wearing her silver-scale costume—the six inches or so there was of it: She had a neat little figure, slant eyes and a pointy chin, brandy-brown hair cut in a fringe on her brow. She said, "I lost my job, too."

"So?" I snorted, wishing I'd never laid eyes on her. Then I turned and walked on to one of the travel-wire stations. A sling-car came along on its trolley wheel, and I touched the stop-button on the rail.

"Wait for me," the girl called, but I got in alone and let it snap me away to my dorm-tower. It was a bad dream, I decided, to wake up from in the morning. But when I woke up, there was a message on the tele-screen beside my bunk. The discharge was made official; my license was revoked.

I cursed the fat traffic boss and the girl who'd caused the trouble, and then I went out into the eating room. There were about ten acres of tables—most of them empty—and I sat down and ordered some cheap breakfast—protein jelly and acid drink. Just as it arrived, something slithered into a chair opposite me.

It was a Martian, but not the usual creeping bladder with tentacles. This one had been to Earth, and had had the

ASTEROID

Wellman

*a leech—with a genius for getting
into trouble!*



The Martian's weapon was as effective as a pop-gun. The ageless guardian monster set out for Guxl.

usual surgical preparation for life there. He stood erect, on two tentacles artificially developed for legs, and under his loose robe his soft body-bag was undoubtedly held up in a sort of metal rack or basket. His head, all fleshy-petaled like a chrysanthemum, he bore upright on what passed for his shoul-

ders, and his four lesser tentacles stuck out through sleeves.

HE SPOKE, and I knew that he had an artificial articulator lodged in the breath-passage among his face-petals.

"My excuses," he said, his voice full of metal and formality, like all Martians, "but you are Drury Banion."

"I know it," I grumbled nastily, for I was past loving anyone.

"You are a space-flyer who has lost his job," he went on. "I shall give you a new one."

At that I remembered my manners, and asked him to sit down. He had already done so, and was paying for my food. He introduced himself—his name was Guxl—and he said that he needed a space-wrangler.

"Hold on, Martian brother," I said. "You'd better understand that my license has been revoked."

"Captain Banion," purred out Guxl, my new Martian friend, "whatever has befallen your license, you can still operate a rocket ship."

"Of course, but it wouldn't be legal. You'd pick a bushel of trouble hiring me."

"I am prepared to risk that."

"Sorry," I said. "Not interested."

He purred in his throat and got up. "Come to me if your mind should change. My lodgings are seven floors down."

We both left, in opposite directions. I went to my own room, and within twenty seconds my buzzer sounded. I opened the door to a big tough-looking guy in the green uniform of the Martio-Terrestrial League Police.

"Come along, space-wrangler," he ordered out of the side of his mouth.

"What for?"

"You've been seen consorting with a suspicious guy—a Martian named Guxl and a—yah—"

The rest of it was a sort of tired sigh, and he melted down on my threshold.

Right behind him stood that ever-sickening singing-girl. She'd clipped him on the back of the head, with a wrench.

"Now we're even," she said quickly. "I've saved you this time."

"You've landed me in the soup, you mean!" I roared. "When this cop wakes up—"

But I had to run, for he was already twitching. Only one place to go. I went down seven floors and buzzed at the door of Guxl. He let me in, as though he expected me, and introduced me to two Terrestrials.

They were the shadiest-looking pair I ever expect to see, even through bars. Hommoday was a tallowy, top-heavy giant, without a hair on his head, not even eyelashes. Tarsus was a dark little fellow with a broken nose and no chin to speak of, only a black pointed beard.

They could see I was in a jam, and they figured I'd do what they wanted. So they made it quick and plain. They'd dug up somewhere—willed a guy for it, was the hint—a code record of the famous Lost Treasure of Corsair Mell, the scientist-pirate of the bad old twenty-sixth century. As you know, he looted a freighter-load of Proto, in the days when it was plentiful and nobody but he knew it would prolong life. He'd planted it, according to his dying confession, somewhere in the System, and all he'd add to that was that it was well guarded. Of course, his guards must have been dead now for two hundred years.

Naturally, the Guxl outfit had to go through space to wherever it was hidden. Naturally, they had to go secretly, on an unchartered ship. They had a cruiser and I, jobless and disgraced, was to be their pilot.

Remembering the cop that must be awake now, and wrathy, I nodded yes. The four of us went out, took a slingscar to the ground level, and went by autobus to the edge of Pulambar.

NEITHER you nor the League Police could guess where they'd stashed their space-cruiser. Well, there's a suburb of Pulambar, all foundries and smelters. One shop was especially seedy and musty, with a big pit behind, full of slag and puddle-metal that must have accumulated for whole Saturnian years. Sloppy, but get the angle? The cruiser had been brought in chunks to the shop and assembled there, and it would be able to take off with the slag pit as a blasting base for the starting rockets.

Guxl offered to cut me in on the plunder. I said no, thanks. I wanted the equivalent of a year's pay, to live on 'till I'd fixed things with Spaceways. And, by the way, where was the treasure?

"Do not worry about that," he put me off in his purring voice. "Into space first, then directions. The year's pay you shall have."

HE WAS SMART; I could have run to the cops and maybe got my job back for the information. So we went and looked at the ship—a cartridge-shaped Gelder Hawk, sixty feet over all and fourteen in the beam. It was dinted and dull, and inside pretty dingy, but serviceable, and already fueled and rationed. Just before high noon we boarded. I whispered her into the open on half-rockets, side-blasted her up on her tail, and took off.

As we cleared atmosphere, Guxl—he stayed at my control elbow—managed a sort of metallic snicker, as if he was satisfied.

"We have begun well, Captain," he gurgled. "You will please to turn around, for the asteroid belt. Our objective is Asteroid Number Twelve Hundred and Four."

"Sure 'nuff?" I paused and thumbed through a star-date list. "That'll be two months at least. We're nowhere near conjunction."

"So I have ascertained," he assured me, icicle-stiff and cool: "I am no space-flyer, but I know how to reckon orbits, and I have done so as regards this particular Asteroid Number Twelve Hundred and Four." He paused. "That numerical designation does not please your romantic Terrestrial ear, I am afraid. Shall we call it—Treasure Asteroid?"

At that moment came a snort and a struggle from the cabins aft. Into the control room busted Hommoday and Tarsus, like a fat Big Bear and a dusky Middling Bear. Between them writhed and kicked a fast-held Little Bear—a female one.

"Stowaway," Tarsus told Guxl. "She was under a bunk. I saw her first—she's mine."

"Mine," threw in Hommoday, glaring. "I grabbed her first."

Guxl's articulator made a hawking sound. "Bring her into the light."

They did, and you've already figured out what the payoff was. She was that quadruply-qualified little singing-girl.

The mess foamed up like yeast. Hommoday wanted to fight Tarsus for her; Tarsus wanted to cut cards. Guxl sneered and temporized, and all the time the singing-girl kept yelling, fit to sour milk, that she'd followed and stowed away for me, and me alone. I was her protector and defender, she'd tag me to the verge of the System and beyond.

Out went the Banion neck, maximum extension. I set the keys of the control board and locked the ship on our course. Then I got up and said, loud and clear, that there'd be no bestowing of the lady against her will. Hommoday and Tarsus wanted to argue; then they wanted to jump on me. I said O. K.—even at two to one, I'd get a lunch while they were getting a dinner. After that, they could fly their own ship.

Guxl got in on my side, and quite

plainly he was brains and boss. The singing-girl made a dash to kiss me. It was Guxl, bless him, who put out two or three tentacles and shunted her into a corner.

Then she answered questions. Name: Cassa Fabia; employment: gone since my kayo of the gold-tunic traffic boss; destination: wherever I went, in this ship or otherwise. Guxl hawked again, and said that she'd be cabin-slavey, cook and cleaner-upper. She grinned—most guys would think ravishingly—as if that was good enough for her. Then she asked me not to be mad. I said nothing; I was so hot my skin blistered from the inside.

The voyage wasn't quite as boresome as some I've wrangled, mostly because of Cassa Fabia. She worked hard, cooked passably well, and once or twice when we were all bored stiff she sang and danced for us. Both Tarsus and Hommoday made passes at her. I caught Hommoday at it, boxed his jaws, and when he swung and missed, I pegged him so hard in the belly he couldn't eat dinner. Tarsus wanted to shake my hand for that, and I refused. Then he wanted to learn space-flying, and again I said no. If I was the only wrangler aboard, they'd need me going and coming. There'd be no knives in the back.

Guxl told me more about the treasure of Corsair Mell. The shipment of Proto he'd grabbed was on a government freighter—seven or eight cubic yards, said the record. I was quadruply sorry to hear that, for I wanted no truck with grabbing something that belonged to the League. Guxl, however, saw it only as something worth its weight in whatever currency he chose to demand, even if sold through fences. He and his pals would be filthy rich.

ASTEROID NUMBER 1204, renamed Treasure Asteroid by old Petal-Puss Guxl, showed up in the vision

screen at the end of fifty-nine days. It wasn't even as round as most of those pebble-worlds, being long and a little curved, like a banana. I figured it about fifteen miles in length and two miles through the narrow way. Imagine Manhattan Island torn up by the roots, kinked midways and flung up in the sky, and there you've got Treasure Asteroid.

I cut the blasts almost toto, but even then we floated down like a rose-leaf. A Gelder Hawk weighs sixty tons on Earth and about twenty-four on Mars. But we smacked Treasure Asteroid like a safe let down by a rope. We didn't bounce even. From the ports, the surface looked rough-cast and lavalike, high points as bright as silver in the sun, while the shadows couldn't have been blacker if they'd been painted. We were down on one slope of the central kink, and could look across to the other, as if we were in a narrow slice of a valley.

Guxl and his two Terrestrial buddies goggled out at the terrain, then bent together over a chart. They chattered and pointed. At last they went back to their cabins. Cassa Fabia hung around to talk to me, I forget what about. She still made me sore. In the midst of asking her please to mind her own business, I heard the nasty buzz that means "danger" in the fuel department. I ran and looked. Somebody had crocked the feed motor.

I grabbed a wrench. The only thing to do was drain the conduits, and quickly, before things built up to an explosion. Out came the three treasure-nabbers as I worked. They were in space-overalls and helmets of clouded glassite.

"Which one of you did this?" I wanted to know. "It'll take sixteen hours to drain and remix the fuel."

"So I understood," purred Guxl, as he settled his helmet into place. "You, Captain, will have something to occupy you while we look for the hidden trove

of Corsair Mell."

"You did it on purpose!" I yipped, but they were gone into the air lock, and I had to get back to my tinkering. Cassa Fabia said, very comfortingly, that Guxl didn't exactly mistrust me; he only wanted to be dead sure that the ship would wait for him to bring back the Proto. "He told me as much," she finished.

I roared at that, and accused her right out of suggesting that Guxl jimm'd up the fuel-line. She acted flustered, as if she couldn't deny it, and I almost threw the wrench at her. But I'd never struck a woman, and Treasure Asteroid seemed like such a funny place to begin. So all I did was tell her never to speak to me again. Of course, she didn't pay any attention, but chattered on and asked if she could help.

I'd been testing and hastening the fuel-flow for about an hour, I suppose, when the panel of the air lock rattled, and in came Tarsus. He unshipped his helmet, looking stuffy.

"I'll make a deal with you, Captain Banion," he panted out. "I'll make it to get even with Guxl and Hommoday. They gave me the slip just now—tried to lose me."

"I'm sick of 'em, too," I told him. "What's the deal?"

"They think they'll grab the Proto and get back here without me—probably to lock me out, let me die," he chattered. "Well, I've come back first. What do you say to breaking out some automatics and blasting them, then grabbing the loot for ourselves?"

"I want no part of that Proto," I replied, thinking of how mad the League would be.

"But I do," put in Cassa Fabia, without waiting to be asked. "I vote your way, Tarsus. That makes us two to one against Captain Banion."

WE DEBATED hotly, while I slaved at those fuel-lines. I gave them what I

thought would be a crushing argument—that I was the real power, because the ship couldn't move without me. But Cassa pointed out, and Tarsus agreed, that I'd be suffering as much as anybody if I refused to fly back from here. So fierce we got about it that Guxl and Hommoday came back without our knowing it.

And they came back on the dead run, fairly diving through the air lock, almost fainting. Hommoday got his helmet off first, but he couldn't talk—only waved a shaking fat hand at the port. I looked out.

Something black and broad and big, like a galloping statue from the gate-post of hell, was coming up on us at the double.

I don't know what was most arresting about that thing—its bigness or its blackness or its ugliness. I guess its blackness. I never saw anything so black—not even space-shadows. Charcoal would have left a white mark on it. If you know what I mean, it failed to shine. It gave back so little light that it looked two-dimensional, a silhouette. As far off as you could see it—and you'd want it to be even farther off than that—its blackness was complete, so black that it hurt your eyes with its absence of light.

I see that I've failed to tell how black it was; maybe I'll fail at telling how grotesque it was. After all, when you're scared silly, you don't take notes or make scientific examinations. But I'll try. More than anything else, our visitor was like the idols that old-time Terrestrials worshipped—human in that it had body and arms and legs, but dumpy and gross and disproportionate. The torso was wider below than above, blocky rather than curvy. The skimpy legs were all knees and flat feet. The arms, to balance things, were thick, long, knuckly. They reached to the ground. The hands on them had thumbs, but no fingers—they were like enormous mittens. The head wasn't a head, but a

sort of a bucket, low and thick and neckless and featureless—you couldn't make out even an eye. And I guess the whole hulk was eighteen feet tall and nine feet thick.

When we had time to talk, I heard how Guxl and Hommoday came to where the Proto was supposed to be hidden—up at the high end of the asteroid, the north pole of it I guess you'd call it. There was a cave there, said the paper they'd sneaked, but as they approached they saw two big, black shadows, like giant pools of ink. And while they tried to make up their minds which was the cave, the biggest shadow got up and kind of shook itself and took after them.

Meanwhile, black mittenlike hands, bigger than two sides of burnt beef, laid themselves on our ship.

First the Black Fellow rolled us over, like a stevedore with a barrel. I'd turned off the gravity-power in the floor, and we all took a somersault and a slide. Then—we watched from the porthole—he doubled up one fist and gave the side of the ship a belt that almost deafened us, it clanged so loud. We flew through the air—I mean ship and all—like an empty bottle, landing high up on the slope. He came racing after us. This time he grabbed the edge of the lock-panel, and I heard it creak and jangle. I knew he had the strength to drag it off.

But just then night fell, sudden and complete, like a black cloak. Everything was one whisper from being as dark as the thing out there knocking at our door. Only wan stars—I was looking out at the port—and the planet Jupiter gave us light, something less than the rays of the quarter-moon on Earth.

AND THE GRIP on the lock-panel slackened. It still pawed there, but it was suddenly ineffectual. We heard a couple of feeble gong-sounds, as if he was poking sleepily at the plating. Then

Cassa, at another port, saw that towering silhouette—so black that it made the rest of the gloom seem pale—drawing away. The Black Fellow didn't run or leap now, he sort of lurched, as if drunk or tired. He headed for the sunny side of Treasure Asteroid.

The coming of night had stopped him somehow, and we thanked our various gods of luck, and gathered for our first honest discussion since the beginning of the trip.

Have I said that Hommoday was huge, and Tarsus dark? Well, compared to what we'd been watching, Hommoday seemed shrunk to a midget, and Tarsus looked pale to the tip of his Van Dyke. At that, we were all a few shades lighter in the face, except Guxl, and his petals were all on end. But his mechanical voice was steady as he announced, "Now we know that Corsair Mell spoke truth about the guard on his treasure."

"But w-what is it?" stammered Tarsus. "None of the asteroids are inhabited."

"We have just observed the contrary," Guxl reminded him.

"The thing's afraid of the dark," I said, hoping to comfort them, and myself, too. "Night seems to be about four hours long. We'd better try to get back into flying trim while we have the chance."

But when the dawn whooped up four hours later, I'd made little progress. Not enough anyway. And with the dawn came the Black Fellow. He headed for us, a cutout of black on the silver-gray rock. Stopping about a mile away, he seemed to be studying us.

"We have one hope," said Guxl, very wise-sounding. "He lives, and therefore he can be killed." One tentacle fumbled in a locker, and brought out a big electro-automatic. It was four feet long, and meant for a fixed rest in a fighting ship, but with the asteroid's

dinky gravity Guxl handled it like a pistol.

"Come on," he ordered Hommoday and Tarsus. "We shall meet him."

"How do you mean, meet him?" both asked at once.

"You two, being Terrestrials, are more agile than I. Go and lure him. I," and he lifted the automatic, "will finish him."

He had to speak sharply before they dragged on their space-overalls. The three of them went out through the lock, Hommoday and Tarsus ahead. Guxl following with the gun.

His Royal Blackness charged at once. To Cassa and me, side by side, at the port, it looked like a big lumbering man playing tag with babies. The two decoys brought him toward Guxl, then ran opposite ways to give the Martian a clear target. At that range Guxl couldn't possibly miss, and he knew it. Cool as cool, he lifted the automatic and let drive a stream of explosive bullets.

Green fire seemed to burst all over the big jet figure, enough to wash away a regiment. Then the really unbelievable happened.

For the Black Fellow wasn't hurt, though that blast would have whiffed twenty times his volume of flesh and bone into stripped atoms. He didn't even reel or falter. He burst through the fountain of flame, almost got Guxl, who dropped his gun and ran. So did Hommoday and Tarsus, and the three reached the lock-panel almost in a dead heat. But there wasn't time for them all to get through. The Black Fellow caught up with Hommoday, who was the biggest and slowest.

From inside the rest of us watched the end of Hommoday. Imagine a deformed, inky-black child, tearing to pieces a doll it doesn't want any more. Imagine that, magnified twenty or thirty times, and you've got the picture. Oh, yes, and imagine the doll kicking and

wriggling, until its body is all in shreds and—

TARSUS HAD JUST taken off his helmet when he moaned and fainted away. Cassa was crying, and for the first time since I'd known him Guxl's articulator wasn't articulate. I dragged Tarsus over by the doorway that led to the cabins, then laid him down and started to push open the panel. I paused, with my hand on the knob.

"I cannot understand," Guxl was making out to say, "what we have here. It is not organic, or the explosive charges from the automatic would have taken effect—"

There was a wrench at the lock-panel, the metal screamed as it tore away. Then a battering punch at the inner partition of the lock compartment itself. And with a roar like a whistle, the air began pouring out through the broken bulkhead.

Guxl fell sprawling, and I saw a big black mitten close over him. He disappeared through the hole, and the escaping air became a gale, almost sucking me away from my hold on the knob. Cassa Fabia had come toward me, and almost without thinking I grabbed her shoulder with my other hand. Then I managed to get into the corridor aft, between the cabins, and to slam and fasten the airtight door to the busted control chamber.

Through the glassite pane we could see the now airless front of the ship. There was a wet spot where Guxl had lain. Perhaps that capturing paw had squeezed some Martian blood out of him. What went on with him in the open we could imagine, and we didn't care to watch. After a moment or two, we saw the inner bulkheads of the air lock battered at them through the opening where the panel had been.

Then it could reach in, all the way

to the shoulder. Its arm was twelve feet long or more, jointed in big lumps—even that close it was too black to make out anything but outline—and the great fingerless hand on the tip was like a dredge. It could almost reach the door, almost reach the form of Tarsus lying there, almost reach the machinery at the other end of the control chamber, but not quite. We were safe, but we were stuck.

Cassa and I searched the cabins of the three smart guys who'd brought us here. We found food, bottle water and other things, but nothing of the equipment we most needed to reclaim the control chamber—no spacesuit, not even an extra helmet.

"This is bad," Cassa whispered, as though afraid we'd be overheard.

"Glad you realize it, Miss Fabia," I said in the deadly voice. "Even after you sicked this Unholy Three onto me, I might have kept clear. But no; you had to slug a cop who was giving me a routine investigation, and all I could do was jump out of the frying pan into the fire."

"I've jumped into the fire, too," she protested, almost tearfully.

"That was your idea—stowing away. Now stay out of what little's left of my life. I'm no good to you—I can't get you out of this mess."

"No," she said, "but maybe I can get you out."

She didn't say how, and I didn't relent enough to ask her. She went to the cabins and began fumbling in the lockers, while I kept watching the control chamber. The fuel mechanism, I could see, had been left running, and after a while the ship would be flyable. But I had no space-armor, the control chamber was a vacuum, and I might as well be six light-years away from the pilot's seat. Once or twice the Black Fellow stuck his arm in and groped around, like a cat fishing in a bowl. But

he got nothing. After a while it turned dark outside, and from a cabin port I watched him lumber slowly away.

"He'll be back with the Sun," I grumbled out loud.

"We'll try to be ready for him," said Cassa.

She'd come in behind me, her arms full of stuff.

"This isn't exactly a space-overall," she went on, "but it may do."

SHE SHOWED me a sort of garment, all one piece with sleeves, legs and feet. It seems that Tarsus was cold-blooded, and he slept in things like this—tough fabric, fleece-lined, fastened with a zipper. Cassa had found a pair of leather gauntlets, too, and had sewn them to the sleeves.

"No helmet," she added, "but we can rig this."

It was a glass jug, that had held pickles or something, empty and big enough to fit over the head. "We can pull up the collar and lash it to the rim," she said.

"No good," I growled. "The air would leak through a thousand places."

"Not for a while." She showed me her third find. It was a big squirt-gun, full of white air-proofing—that milky metallic enamel they sometimes use in space for a temporary mend of cracked or porous plating.

"Now," said Cassa, "I'll put on the suit and make it tight. You give me a coat of proofing to seal it. As long as it's still sticky I can move—long enough to get out to Tarsus—"

"Thunder, that's right!" I actually yelled. "Old Blackie didn't drag him away, and he's wearing a real spacesuit. But it's little Drury Banion who'll do the job. No chore for girls."

She shook her head, and for the first time I liked her smile.

"Little Drury Banion will do nothing of the kind. You'd fill this rig too

tightly. It'll bag on me, enough to carry air for me to breathe a minute or so."

I saw that she was right, and gave her no arguments. She put on the garment and zipped it shut, and I lashed the collar and wrists, and saw that the jug was firm on her head. Then, with the proofing squirt, I sealed her from toes to chin. She winked at me through the glass, and opened the door. The escaping air almost bowled us both over. Three seconds, four, and back she struggled, pulling Tarsus along by the ankle. Then she ducked out again, and brought back the helmet he'd dropped. Once more we closed ourselves in, and I took a knife and cut her out of her air-proofed pajamas. The half-dried enamel was as hard to cut as sheet tin.

Then we peeled poor Tarsus. He was stone dead of course, having lain so long in a vacuum. I got into his overall and helmet, and went out. I found rivets and welders and spare plates in some of the lockers. Outside, I picked up the lock-panel where our little visitor had chucked it to one side, and began repairs. In two hours I had things patched up, and we let air back into the control chamber.

Again dawn rose over our face of Treasure Asteroid. Through the forward port we saw the slope below us and the slope beyond. We saw little rags of Guxl and Hommoday. And we saw the Black Fellow, coming to pay us another morning call.

I ran to the fuel gauges.

"Why, we're almost ready to take off," I whooped, and my whoop descended into a groan. If we had just one more hour—but here comes that super-gorilla."

I was talking to nobody. There was a rattle and click at the air lock, Cassa had put on Tarsus' overall and helmet, and had gone out.

There was nothing I could do but jump to the port and watch. There

came the Black Fellow, twice as tall as Goliath, maybe three times as broad. There sallied Cassa to meet him, littler than David could possibly have been; and without a slingshot—only the air-proofing squirter, raised in her hands. He was already upon her, reaching for her.

She shot a stream at him. It splashed on his head and chest, and spread there like cream poured on a-ton of coal. He paused and wavered, as he hadn't done when Guxl had given him a dose from the electro-automatic. What had Cassa stumbled on? What was she doing? Where did she get the inspiration, the courage?

I found out.

SHE DODGED around to one side, and sprayed the Black Fellow from that angle. He was piebald now, half-covered with the opaque white proofing enamel in great blashes, and he seemed to have gone sissy. He turned slowly and made a grab—with only one arm, the one she hadn't sprayed as yet. But she was ready, and played her squirt-gun on him as if he was a fire she was putting out. That's a good comparison, for he was wan—or his power was. He stumbled now, and stooped, and came down on all fours. He crawled feebly in her direction.

Cassa didn't try to run. She dashed up close, gave him a last stream, walking around him as she played it. And when she was through, he was white-washed completely, even the soles of his big feet. He looked like a snowman that had fallen on its face. And he didn't move. He lay there as stiff and still as a part of the asteroid.

When she came back, she explained quite simply.

"I added two and two, and made four. The bullets didn't dent him, so he wasn't flesh. Therefore he wasn't alive, but a robot. Corsair Mell had

some scientific skill and imagination, and must have made him and left him here. But that argued that Corsair Mell had a way of handling him—making him harmless—and all I had to do was figure out that way."

"It must have been child's play for you," I said.

"Oh, pretty easy. It all ties up to the fact that he could race by day and only crawled by night."

"I'm still wondering about that," I confessed.

She laughed. "Drury Banion, must I do all the thinking for both of us, forever? Remember how absolutely black he was? And what about blackness, as regards light and heat?"

"Why, it absorbs—"

"Yes. He absorbed light and heat rays. And that was the power that ran his motor. Lots of power by day, less when he had only a few star-beams. That gave me the final hunch, that came when you were putting the air-proofing to me. Paint the thing white, I told myself, and he'd be powerless."

"What if it hadn't worked?" was all I could think of to ask.

"Then I'd have been wrong," she said soberly, "and a disgrace to the Service."

She explained that, too. Cassa Fabia was a gilt-edge operative of the Martio-

Terrestrial League police, assigned to get hold of the Mell cache of Proto, for the government laboratories. She knew that Guxl and his friends must lead the way to it, and that to lead the way they'd need a discredited space-wrangler.

That's where I came in. When I showed up in Pulambar, the cops framed it so that I'd sleep and eat in the same tower with Guxl, and we could be steered together. They framed the fight at the happy-joint, my discharge, and all the rest. And Cassa tagged along just as I've told.

"You're really a sweet boy," she finished, "and you'll have a good analytical mind to match your vigorous way of doing things—that is, you'll have it if I train you. Now, if the ship's working, fly us up to the north pole of this asteroid. I'll pick up the case of Proto from that cave, and then we'll head back for Mars."

I did, and she did, and we did. And I've been given my job again, with a promotion and a raise and a bonus. There was some talk of me flying a bunch of engineers back to Treasure Asteroid, for an examination of that whitewashed Black Fellow, but I begged off. I want to go to Earth on the same ship with Cassa, and we'll celebrate together in New York. We're both beany about New York.

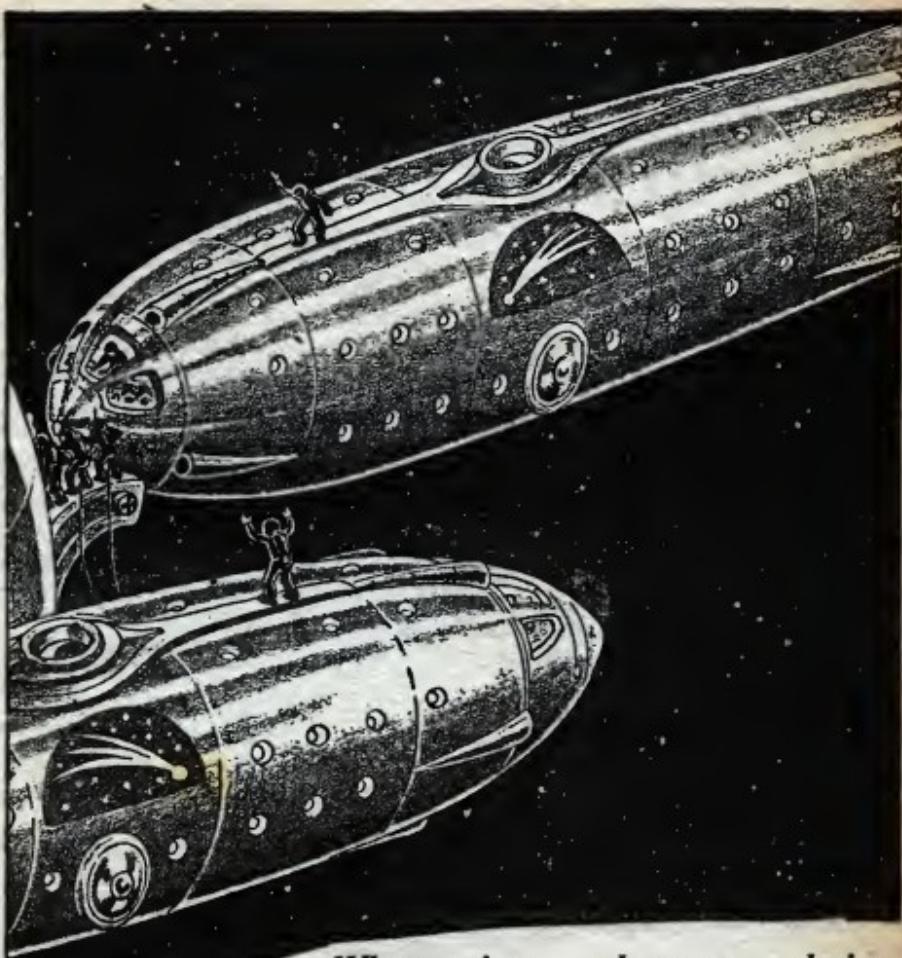


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ORBIT XXIII-H

By ROBERT WILLEY

THE twelve men, small, dark-haired, bespectacled, exquisitely dressed and even more exquisitely polite, rose from the chairs they had occupied during the long con-

ference. They bowed after the thirteenth man, their leader, who was just leaving, and bowed to each other before they took their big brief cases.

Most of them departed alone in their

own expensive cars, going to attend to their various duties as bankers, manufacturers, admirals or high officials. Only a few left together. The Space Guards would have been immensely interested to know their conversation and to have it translated into a European language.

It was very wise, they meditated, that their ruler did not join the conquest of space so many years ago. The result would have been that they would have been under obligation now. That would mean that the white nations had their hands in everything and that the Space Guards would—and could—prevent them from altering the political conditions in space.

As matters were, thanks to the wise decision of their deceased ruler, there was no obligation to comply with. True, they had been forced to wait patiently for something new. Their own scientists had worked hard, but without success. There was not an overlarge amount of experience to build on, and what experience there was was not easily accessible. Now something entirely new had been invented and in all probability it was shockingly effective. If it could be secured and kept a secret, it would change the face of the Solar System. And no Space Guard could do anything—because the activities to come would be strictly legal.

They smiled a very satisfied smile—not merely the customary one—and felt certain that everything would go on very well. One of their best men worked on it; he would not fail as had the last attempt that had almost revealed their wishes. And the hidden base on Earth would soon be destroyed completely without leaving even a suspicious trace.

Thirteen yellow men were very much satisfied—

THE PEAKS of the mountains seemed to float in the sky like independent celestial bodies. Glaringly white, they shone in the light of the rising sun

that did not yet touch the ground. It was not completely dark, however; the stars shone with incredible brilliance and the Earth stood large and motionless in the sky. And the mountain peaks that were bathed in sun-glare reflected light that would have been sufficient to recognize at least the features of the landscape.

Commander Thomas O'Flanahan of the Space Guards stood at the large window of his office and looked at the spectacle. The seemingly detached mountaintops grew larger and larger. He knew that eventually they would merge with the ground and become solid mountains. But now they looked like a disease of the firmament. It was as if the eternal fires of some infinite beyond were slowly eating their way through the sphere of black glass that encased the universe.

Commander O'Flanahan was almost happy that his hours of duty happened to coincide with "dawn". It was a strange dawn, at least as beautiful as any dawn on Earth. But it seemed more awe-inspiring. And besides—well, he would not see it very often any more. He had reached the age where men begin to think of hobbies that would fill the leisure time of a pensioned Space Guard.

He was thinking of life on Earth. It would be necessary to readjust himself. The greater part of his life he had spent on other worlds, doing what a Space Guard was supposed to do, helping and aiding in every conceivable way people who were in distress. He had done almost everything at one time or another in his career. From repairing rocket engines to collecting samples of minerals; from bandaging broken legs to adjusting the controls of telescopes. The life of a Space Guard was usually hard and sometimes distinctly unpleasant—but it never lacked interest.

The glassy knob on the telephone on his desk suddenly looked like a glow

worm in the semi-darkness. Commander O'Flanahan took the receiver.

"Oh, hello—Doc van Stijnberg. How are you doing? Up so early?"

"Late, you mean, commander," answered the bass voice of the astronomer, director of the Lunar Observatory two hundred miles from Space Guard Center Luna. "I was ready to go to bed just now, but something came up that might interest you, I think."

"Well," said O'Flanahan encouragingly.

"Well," repeated Van Stijnberg, "one of my automatic cameras around here caught a spaceship in flight. Apparently they were going to land, because they had all jets working full blast. Say, a marvelous new construction. The jets must be almost invisible to the eye—most of it in the ultra-violet. And they are four times as long as usual. They must have an enormous exhaust velocity."

The astronomer paused.

"Stijnberg," said the commander, either you have a funny sense of humor to tell me a story like that around this time of the day, or you really photographed what you say you did and now you are trying to find out Space Guards' construction secrets."

"I thought you would react that way," said Van Stijnberg with an undertone of satisfaction in his voice. "Well—I did not think it was a Space Guard ship. It did not look as militaristic as your ships usually do. Anyway I think they landed. My seismographs recorded slight tremors as landing spaceships cause them sometimes."

"Where?" The commander's voice was tense, mingled with surprise.

"Lucky that my subsidiaries in Cassini recorded these tremors too." Van Stijnberg now sounded very much pleased. "I just checked the records. The center of disturbance was in Palus Nebularum. I'd say Devil's Glory Desert. It tallies with the visual ob-

servation of my subsidiaries who saw the ship disappear behind the rim of Cassini in the general direction of Palus Nebularum."

"Thanks," said O'Flanahan. "I'll have an investigation party over as quickly as it can be done. The ship did not report its arrival yet. Maybe something is wrong with them. Have the photographs and the seismographic records radioed to me."

"I will. And now I go to bed. Good night, commander."

While the automatic receiver clicked busily putting a photograph and two graphic charts together from dots of various intensity, the commander took another telephone receiver.

"Rescue squad, Sergeant Dennis speaking," came the answer.

"O'Flanahan! Who is on duty for the survey ground crew?"

"Captain Houghton and Pilot Kober, sir."

"Very good, call the captain to the phone."

Then, when Houghton reported: "O'Flanahan. Good morning, captain. Captain, there were tremors recorded at or near Devil's Glory Desert in Palus Nebularum. Please order Kober to be ready with a survey car and have the hospital fix up a rescue party for later use. Come to my office at once, please."

ABOUT SEVEN HOURS later, a strange-looking vehicle approached Space Guard Center Luna. It was the survey car Captain Houghton had used for the trip to Devil's Glory Desert, a vast expanse of multi-colored dunes near the center of Palus Nebularum, the "misty swamp"—which, of course, was neither a swamp nor misty. The survey car—designed especially for conditions on the Moon—consisted of a cylindrical body thirty feet long and seven feet in diameter, resting on two large and wide caterpillar belts. The cars could climb through any kind of terrain

and were capable of a speed of close to eighty miles on the smooth ground of the *mare*. There was no streamlining, unnecessary on the practically airless Moon, but the tough and heavy steel plates of the body—weight did not matter much on the Moon and protection against occasional meteorites was necessary—were plated with a highly polished layer of silver and rhodium to reflect light and heat radiations, especially the latter.

Trailing behind the car was a so-called fuel trailer, a kind of collapsible sled equipped with holders resting on springs, designed to carry three large fuel drums. It often happened that spaceships landed without much fuel left in their tanks. Then the Space Guards used these sleds to bring them the precious liquid they needed.

When Houghton's survey car had left Center Luna, the fuel trailer had been empty and strapped in sections to the car. Now it bore one large fuel drum, found three-quarters buried in the blue sands of Devil's Glory Desert.

O'Flanahan had learned about it soon after it had been found. Houghton had reported to him from Devil's Glory Desert, using the small radio sender of the survey car. There was no spaceship when he had arrived. But there were unmistakable marks that a large craft had landed and taken off again. That they had done so without informing Space Guard Center, as Interplanetary Law demanded, was proof that something was wrong. Looking around for a clue, Houghton had finally found a fuel drum almost completely hidden under pumice dust thrown up by the blasts of the unknown spaceship. They had rescued it, but although it felt almost empty had not dared to open it. Instead, they had assembled their trailer and brought it back for expert examination.

Research Laboratory IV had been cleared to receive the car. The outer

door of its air lock was open, illuminated by two floodlights. It was still dark on the ground, but the administration building and the observation tower were bathed in sunlight. The rays just began to touch the flat roofs of the larger workshops and laboratories.

Kober, who was sitting at the wheel of the survey car, drove it into the open air lock. Then both men—clad in space-suits—leaped out of the rear door of the car and pulled the trailer into the air lock. When Houghton gave the signal that he was ready, the outer doors closed noiselessly, the valves supplying air opened, and only seconds later the inner door swung wide. Kober drove car and trailer inside, Houghton opened the visor plate of his space-suit and walked toward the group of men that had assembled after his call had been received.

There was Boris Woulson, chief technician of the repair shops; Dr. Boerhave, the heavy and jovial head of the departments of biology and chemistry; William Taylor, the little rocket engineer who looked like the cockney he spoke; even Commander O'Flanahan himself and his two distinguished visitors from Earth. Houghton knew both of them. One was Dr. Frederic William Helmer, rocket expert from Headquarters in Space Guard City near New York, United Americas. His six feet towered above the other, a small dark-haired man of decidedly Gallic type, with moustache, diamond ring and exquisitely pressed clothes. He was Pierre de Costa-Coudray, one of the ablest theoreticians of the French sector—and at the same time one of the worst linguists. The heavy German and the elegant Frenchman respected each other's abilities enormously; and even had a distinct liking for each other. But they never managed to understand each other very well, which was solely due to the fact that Helmer insisted on speaking French to De Costa-Coudray

when they were together, while the other persistently spoke German on these occasions. Each thought silently that the other's knowledge of the respective foreign language was hardly sufficient for grammar school. They were both right. But they continued being polite to each other—even if it came to languages.

O'FLANAHAN made a few steps forward to meet Houghton, who reported stiffly. O'Flanahan acknowledged the report and ordered the fuel drum lifted from the trailer and opened "full size"—meaning that its top was to be screwed off completely. The men stepped back while Woulson and two mechanics donned gas masks and manipulated tools. The top of the large fuel drum came off without difficulty and Woulson ordered his mechanics back while he approached the open container with a flashlight. As he looked inside, the men saw an expression of utter surprise on his pale face. It lasted only for an instant, however, then he looked again as sad as usual. Turning back he went with tired-looking steps to face the commander and reported without the least sign of emotion: "I have the honor to report, sir, that the fuel in that drum is an unconscious young girl. Women have been the fuel that started wars, but I don't know as they'd start a rocket."

It was an official report which should be heard in silence, but there was muttering in several languages. Helmer explained to Boerhave that either Woulson or he, himself, must be drunk, but that he did not drink anything but coffee. Boerhave said something of the strange beginnings of cases of space-fever and of moon-sickness, which prompted De Costa-Coudray to suggest calling the hospital.

Houghton said nothing. He looked at Woulson, at the fuel drum and finally at the commander of Center Luna.

Commander O'Flanahan stared at Woulson. For half a minute he did not

reply at all, probably thinking for himself all that had been uttered around him in various languages. Then he answered formally, "Thank you!", turned around and said: "Gentlemen, let's have a look at this remarkable new variety of rocket fuel. Pilot Kober, please call Dr. Farrell over at once."

The men marched toward the fuel drum, Kober meanwhile telephoning the resident-physician of the hospital. Woulson's report proved correct. There was a young girl in the fuel drum.

"If she were more scantily dressed that would make a nice story," said Boerhave with utter disregard for the dignity of the Space Guard organization. "But she is by no means scantily dressed. On top of a dress she might wear on a day in April in New York, she is wearing a fairly heavy space-suit, comparable in effectiveness to the 'Regulation II' suits of the Space Guards themselves."

They pulled her out of the space-suit. She was quite young, very good looking and certainly alive, although unconscious. Two mechanics brought a stretcher and carried her to one of the low workbenches. Dr. Farrell arrived when the men were just busy examining the other contents of the drum. They consisted of some personal belongings wrapped up in a bundle, food and water for about ten days, and compressed oxygen for the same length of time.

Farrell sniffed and after looking in a cursory manner over her limp form he examined her badly soiled dress. "She vomited while inside the space-suit. Hope it's not a concussion of the brain," he mumbled and tried to open her eyes. The girl raised herself to a sitting position on the stretcher and began to scream with closed eyes. She evidently tried to articulate words, but it was impossible to understand. Breathing heavily she fell back, stretched and seemed to fall asleep.

"I must take her to the hospital, commander," said Farrell.

O'Flanahan nodded. "All right, Doc, put her in one of the best rooms, but in the prisoner's section until you receive further orders."

Pierre de Costa-Coudray had finally managed to elbow his way to the stretcher. He eyed her first doubtfully then with surprise.

"Monsieur le commandant," he said finally, "I zink I know her. The girl—she is Gwendolyn Le Marr, eef I do not err very much."

O'Flanahan's blue eyes were full of surprise again. Then his thoughts swiftly translated themselves into orders.

"Dr. Farrell, report on condition of patient directly to me as soon as any changes become apparent. Woulson, I want a complete list of all things found in the drum in twenty minutes. Allison, trace origin of drum. Do not save calls to Earth, if necessary. Captain Houghton, report to my office in 50 minutes. . . ." Then, turning to De Costa-Coudray and Helmer: "Gentlemen, I shall be glad to see you in my office at once."

DONALD T. RAWLINSON and Rupert T. Farrington met at the door of the elevator of the main tower of Space Guard Headquarters.

"Good morning," they said simultaneously.

"Beautiful day, isn't it?" Farrington opened the conversation, and Rawlinson agreed. They were always of the same opinion, in small matters such as the weather and in important matters that involved the meeting of presidents and of kings. Everybody knew that the two highest commanders of the Space Guards never differed—at least no as long as anybody was listening. And it was exceedingly doubtful whether they differed when alone.

The two Grand Admirals of the Space Guards were not related to each

other in any way. But they had worked together for about forty-five years and had grown alike, just as old couples acquire similarity. They looked like brothers, dressed alike—even when they did not wear uniform—spoke in sentences that were started by one and finished by the other. They behaved in general as if they were two editions of the same person. Even their wives looked alike.

They stepped into the elevator together and left it together on the 72nd floor, their private office. Chatting about the contents of the newspapers they had read, they lighted cigars and sat down, waiting for the secretaries to bring the mail and to report on the events of the night. After having disposed of routine matters, Rawlinson opened the sealed envelope containing the Space Phone reports that had arrived during the night. He read them silently and passed O'Flanahan's report on to Farrington.

Farrington did not need more than a few seconds to read the short report. But it took minutes before he opened his mouth.

"Rawlinson," he said finally, "I do not like this. I have the feeling that it is more than a simple kidnapping story. And if it is, we may expect more strange happenings of this sort."

Rawlinson spoke into a microphone. "Information," he said, "let me know as quickly as possible what you can find about Dr. Le Marr and his daughter." Then, turning to Farrington, he added: "Let's try to reason this thing out. The facts are as follows: Van Stijnberg called O'Flanahan's attention to a spaceship that supposedly landed at Palus Nebularum. O'Flanahan sent Captain Houghton and Pilot Kober to investigate. They found clear marks of a large spaceship's landing and of the take-off, and discovered a fuel drum made by Whitemore & Company in Madura, India. They took this drum back to Center Luna for ex-

amination, and found a girl inside, protected by a space-suit and with food, water and oxygen for several days. The girl was overdrugged with chloroform and something else, and is still unable to speak coherently. Our friend De Costa-Coudray thinks that she is the daughter of Dr. Le Marr, the inventor."

"And since the girl is still unconscious we should not draw any conclusions from these facts until we have heard her story," answered Farrington.

"Right! But I tell you privately that I have a feeling that something bigger is hidden behind her story, no matter how it runs."

"You are thinking," said Farrington, "of that ship Becquin saw land on Earth from his scout-ship and afterward it was found out that no ship landed around that time—"

"And of the adventure of the SG 32 a few months later—"

FARRINGTON nodded thoughtfully. The cruiser SG 32 had seen a spaceship on one of the large asteroids. Thinking that it needed help, he had called it with the result that it tried to flee. The Space Guard cruiser had chased it, but after a few hours saw it explode in space. No wreckage could be recovered—and *no ship was found missing after a check-up*. There was only one possibility: the existence of non-registered space-craft in spite of strict laws.

Rawlinson was just going to say something when a pneumatic tube plopped a container in a padded basket. It was the information Rawlinson had requested. There was not much about Miss Le Marr in the files of the Space Guards. The three photographs did not help; there was no picture from the Moon available yet for comparison. The description fitted—white, blonde, slender figure, 5 feet 4 inches tall, large blue eyes—but this description fitted at

least three million girls between the ages of seventeen and twenty-two.

There was more about her father—if Dr. Le Marr was the father of the girl found—who was a well-known scientist. His inventions were not only known to experts in his line, but also to the public at large. Everybody knew about the Le Marr electric meteorite detector. It had brought him a fortune. Many minor inventions did not bear his name, but were in use on board every spaceship. About six years ago, the report said, he had sold his factories with considerable profit and retired. On a small island near the African East Coast he had built a home and a laboratory where he worked without trained assistants but merely with the help of African natives who did the heavy work. He had not lived in his home steadily, sometimes going to America or to Europe for months. He did not have any social contacts, except those brought about by scientific work or business. Occasionally, visitors had stayed in his home for weeks—mainly scientists of various branches of learning. His daughter had lived in Paris, visited once a year by her father, once a year visiting him in his home, but never for long. Her last visit had coincided with his last stay at home; they had left together.

"Well," said Rawlinson, "a not particularly interesting life story which does not help us any."

"No," agreed Farrington. "Especially since we do not even know that O'Flanagan's guest on the Moon is Miss Le Marr. But there is nothing else to cling to and we might as well follow this lead until we are proven wrong."

The vast machinery called Space Guards began to work, silently, secretly and efficiently.

II.

A LARGE battery of super-powerful searchlights on top of Mt. Wilson flamed into life. The pale beams were not di-

rected toward any terrestrial object; they pointed into the sky. There was a slight quivering of the beams, they then swung in an arc of about three or four degrees—and Lieutenant Wilkins reported: "Space-phone ready to talk to the Moon, sir."

Colonel Winterbotham took the microphone. He knew that O'Flanahan was expecting his call at this minute.

"Listen, O'Flanahan," he said, the modulations of his voice being carried to the Moon by fluctuating light rays to be transformed into electric impulses and into sound again by the receiving set in the observation tower of Center Luna. "I have some news in the Le Marr case. H.Q. made a general call for Le Marr. He is not on Earth. Local police agreed to search his locked home for his body, but he did not die in his home. It looks as if he departed at leisure, which corroborates the testimonies of his colored servants. H.Q. suggests calling all other planets first before further steps are taken."

Winterbotham waited a few moments so that O'Flanahan could answer.

"Suggestion noted. No news yet. As soon as the supposed Miss Le Marr wakes up I'll report to H.Q."

"All right. Call finished."

On Earth the beams of the search-lights died down.

On the Moon not a second was wasted. The space-phone operator of O'Flanahan's Center had to call the inhabited worlds, asking them to look for Le Marr. It was certain that he had not departed from Earth on board a passenger rocket-ship. Yet although international law demanded registration of every man-carrying vehicle capable of ascending higher than a hundred miles, the photograph taken at the Lunar observatory also suggested that at least one non-registered craft existed.

Two batteries of searchlights began to work on the Moon. One of them was located close to the buildings of S.G.

Center; the other on the south rim of Clavius. The beams could not be seen on the airless Moon, but the procedure was just the same. The beams swung from Deimos, moon of Mars, to the tiny artificial moon circling Venus, from Pallas to Ceres and Vesta and even to Eros. The light needed minutes to travel the distances involved, but the message was about the same that had traveled to Earth in a little over a second, a few hours earlier.

"Attention: scientist Dr. Peter Le Marr disappeared—kidnapping possible. Get in touch immediately with all SG units within reach. Report as quickly as possible via Luna to H.Q."

Again a few hours later the space-phone of O'Flanahan's Center called Earth.

"Just finished examination of the girl we found. She asserts that she is Gwendolyn Le Marr. Her father is probably on board a craft of his own design, but not under his command. Please order general search for a ship similar to 'Meligunda' type, originally named *Tahiti* and registered as E/AR/XIX-273. —Earth/ African Republic/ district one-nine / number two-seven-three. Miss Le Marr leaving for Earth in seven hours on board SG. M. 19 accompanied by De Costa-Coudray. Dr. Helmer and Captain Houghton, pilot. I assigned him investigation of this case, under jurisdiction of Center Luna. Miss Le Marr wishes all papers in her father's home examined first by a commercial expert and then by Helmer. Le Marr's latest inventions concerns new drive. Although identity of girl not yet legally established I take responsibility this procedure."

O'Flanahan spoke this message himself, waited three seconds for the acknowledgments, and then switched the connection off.

EXACTLY eighteen hours after O'Flanahan had listened to Woulson's report "the fuel in this drum is an unconscious girl", the scout ship SG. M. 19 cut her jets to zero because she had at-

tained the necessary velocity that would carry her to Earth without further expenditure of fuel. Houghton came from the control room to the main cabin and announced to the three people that were strapped to the thick air-cushioned hammocks, "Ship falling free."

This announcement told them that they were at liberty to do whatever they pleased until corrections of the orbit became necessary.

The girl who called herself Gwendolyn Le Marr floated up from her hammock and asked with tense voice, "How long will it take?"

"Approximately three days, plus a few hours for landing."

The girl nodded and placed herself near one of the windows, looking out into the void. But it was evident that she did not even see the glamour of the starred sky. Her attitude was one of utter nervous exhaustion. Dr. Farrell had warned them in advance to let her alone as much as possible, but to watch her closely. With utmost care they had made her tell her story. It had been a severe strain to all concerned. For minutes she had spoken with a normal and apparently firm voice, only to burst into hysterical crying at the next instant. With equal suddenness she would resume her story, but with an almost inaudible voice. O'Flanahan had shortened the hearing as much as possible—they all knew that the shattered nerves of the girl would recover more quickly in familiar surroundings. She had never left Earth before; the lesser gravity of the Moon and the view into black starred space frightened her. Helmer and De Costa-Coudray had shortened their stay on Luna so that they could leave for Earth in the same rocket.

At the same moment, another spaceship left the Earth's atmosphere to go with tremendous speed into an orbit that led away from the Sun. It was an angle of departure any halfway experienced space-pilot would have shunned. It

led into an orbit that would raise itself high above the plane of the ecliptic. An orbit that would not intercept this plane again until very far from the Sun—farther away than any conceivable spacecraft could possibly go. It was an orbit that was plain suicide to anyone who dared it; it was an impossible orbit for a sane pilot. Only badly damaged rocket motors, working full blast but being completely out of control, could account for such an orbit. But the increasing length of the jets showed that they were not out of control. They forced the ship into an impossible orbit that meant certain death for everyone on board—

And an automatic mail-rocket shot upward from a tiny island in antarctic water south of Africa. It went into another crazy orbit, an orbit that would finally touch Earth again somewhere in South Africa, but that seemed to be calculated to take as much time as possible for the short journey of only a few hundred nautical miles. Fifteen seconds after this mail-rocket had left its launching rack, the rack was destroyed by a heavy explosion. It was only the first of a series of still-heavier explosions. They raged for minutes, shaking the tiny island to its very foundations, only to be blotted out suddenly by a still-vaster noise. A volcano that had been dead and silent for many centuries opened its mouth again and a stream of glowing lava flowed to meet a thousand-year-old glacier. Violent steam explosions could be heard for hundreds of miles. But nobody heard them. Nobody came near enough to hear even the thunder of the clash of lava and ice. Only the needles of several hundreds of seismographs quivered and registered a series of medium-heavy tremors in antarctic waters.

MEANWHILE, the SG. M. 19 was falling toward the Earth. The three men in her main cabin were doing exactly what Farrington and Rawlinson

did; they were reading copies of the reports and trying to think of clues that were not visible even under the most penetrating logical scrutiny. Dr. Le Marr had sold a new invention to unknown people, had demonstrated the invention in his privately owned spaceship and had, possibly, sold the ship too. On the way back to Earth, both Le Marr and his daughter had been taken prisoner, and Gwendolyn Le Marr had been disposed of at Palus Nebularum on the Moon. These were the facts. There was no clue. It was possible that the details yielded one, but if so it was so well hidden that it could not be found.

Houghton was just ready to discuss a few possibilities he had thought of with Helmar and De Costa-Coudray, when a peculiar buzzing sound came from the pilot cabin. Houghton reached the door in one long leap—it required practice to move in a freely falling spaceship—and disappeared behind a large screen.

The sound had told him that rays of an unusual frequency were impinging on sensitized metal plates attached to the outer hull of the ship. It could have but one meaning: a space-phone call. And it must be meant for them, unless they had accidentally managed to get into the Earth-Moon beam.

O'Flanahan called from Lunar Center.

Houghton listened intently, the automatic recorder taking down every sound. There were orders from HQ; they acknowledged his special assignment to the Le Marr case and assigned Helmer to it too. As pilot of the SG. M. 19 he was ordered to land as close as possible to HQ and to report immediately after landing directly to Rawlinson and Farrington.

One hour later another report reached HQ. An automatic mail-rocket had arrived in Cape Town out of schedule. It had dropped into the area of the ocean set aside for the landings of mail-rock-

ets. But it came at a time when neither American, European nor Asiatic mail was due. When the parachute of the mail-rocket appeared in the sky, the postal officials had at first believed that it was a man who had jumped from a high-flying airplane to save his life. When it became apparent that it was a mail-rocket, the officials responsible for the receiving of such mail had been called out at once. They found that the rocket contained only a typewritten sheet of paper, marked on top:

"For immediate transmission to Space Guard Headquarters, New York."

An American twenty-dollar-bill was pinned to the sheet that read:

"Please send rescue squad immediately to Devil's Glory Desert, Palus Nebularum, Luna, to rescue Gwendolyn Le Marr, who is inside airtight fuel drum with sufficient supplies for 250 hours. Dr. Le Marr is safe on board his ship."

The message was signed *SS Tahiti*.

LATE THAT NIGHT Rawlinson's private telephone rang. He was sitting at his desk which was piled with papers and official documents.

The telephone rang for the second time. Rawlinson had to push stacks of books and documents away to clear a path for his arm so that he could reach the receiver. When the bell rang for the third time he had just managed to reach it.

It was Farrington who called. "Rawlinson," he said, "I apologize for disturbing you in your sleep, but—"

"You did not. I was sitting up and reading."

"So was I. Listen, Rawlinson, I can't sleep over this damn Le Marr case. Every minute since we received the first report, I've been busy trying to think of a sensible reason for such behavior. That a man steals the daughter of another man and leaves her father behind

I could understand. But that somebody leaves the *daughter* behind, and runs away with the *father*—that's beyond me. But now I have a theory and I'd like to discuss it with you."

"I'll be over at your place with my car in a couple of minutes," said Rawlinson.

The two met and actually had a dialogue, not one of the usual two-voiced monologues that were proverbial even in the comic strips and broadcasts.

It did not last long, however. They soon agreed in every respect. They saw what real significance there was behind the Le Marr case—it was only necessary to check a few dozen facts and discover a few new clues to prove or to disprove their theory. At first they hesitated in believing it themselves—but it offered a perfect explanation not only for the Le Marr case, but also for the adventure of the SG 32 and for the heretofore doubted observation of Scout-ship Commander Becquin. It also explained several minor incidents that had puzzled the Space Guards.

Most of the data the two Grand Admirals of the Space Guards needed to test their theory could be secured by their own organization. It remained for the girl to tell them the exact nature and—if possible—details about her father's latest invention and what happened to it.

Thus it came that the three men, Houghton, Helmer and De Costa-Coudray, and the girl who was now recognized to be Gwendolyn Le Marr were received by an orderly when they arrived at Headquarters two days later. They were brought to the 72nd floor immediately. Rawlinson and Farrington were actually waiting for them in the inner sanctum of the Space Guards of the Solar System.

But only Houghton and Helmer—being assigned to the case—were admitted at first. De Costa-Coudray and the girl were left waiting for a short time.

As soon as the sound-proof door had closed behind them, Rawlinson and Farrington began to introduce them to their theory.

"Captain Houghton," said Rawlinson, "do you have any theory as to the person or the organization responsible for this?"

"No, sir," replied Houghton, "but I do suspect that it is a fairly large organization."

"A very large organization," agreed Farrington with a peculiar smile. "We think we know it—but we want to test our theory on you. Please tell us off-hand what you remember of the international treaty that is the legal basis for the existence of the Space Guards."

He could not have asked a question that surprised Houghton more than this one. Every schoolboy had to know this treaty.

"THE TREATY provided," he said stiffly, "that no national law shall be valid outside the stratosphere of Earth, but that anything occurring beyond the thirty-mile altitude shall be judged by Interplanetary Law. Neither shall there be any difference of creed, color, race, religion and nationality before Interplanetary Law. Neither shall there be any restriction or customs for trades between residents of the various worlds of the Solar System if said trade does not touch Earth."

"Right," nodded Farrington. "Now, where do we come in?"

"To maintain order and peace, even in case of war on Earth," recited Houghton, "an international force called Space Guards shall be created, with a special law-book valid for any planet, moon and asteroid, also comet and large meteorite, within the boundaries of the orbit of Jupiter, or outside the orbit of Jupiter if a permanent centre of said force, called Space Guards of the Solar System, is established beyond the aforesaid orbit."

"Enough!" said Farrington. "It's not exactly the wording, but so near to it that there is no difference in meaning. Now tell us who signed this treaty?"

"All the powers of the Americas, of Europe and of Africa, also Australia and the majority of the powers of Asia."

"Right. Now, can you discover a hole in the treaty?"

Houghton mentally repeated the wording, looking for some logical flaw. There was none that he, or anyone he knew of, had found. The suggestion that there was one worried and surprised him. Considering the state of development of space flight at the time the treaty was made it was surprisingly far seeing. Considering the development—of space flight—at the time—the treaty was made—! It was a clear treaty—but there was, there actually was, a hole which might be used by—

"The treaty is not adequate anymore! Dr. Le Marr's invention, I have reason to presume, makes some of the worlds beyond the orbit of Jupiter accessible. Since the Space Guards have not yet established permanent Centers on any of these planets, because they were unable to reach them, any nation—"

". . . preferably one that did not sign the treaty," Rawlinson cut in, "is at liberty to go to one of these worlds and legally make it part of their country."

"Exactly the thing the treaty wanted to prevent," finished Farrington. "Space and the planets *must not be nationalized.*"

"Most inconvenient to everybody—even if such nation has no tendency to actually disturb the peace." Rawlinson was very grave. "Captain Houghton, you and Dr. Helmer will have to find a way to stop these attempts of legal violation of the treaty. There are more usable planets and moons beyond Jupiter than within his orbit. As far as I can see, there is only one way to do so: ex-

tend the jurisdiction of the Space Guards to the worlds outside of the orbit of Jupiter by establishing bases there. Now we'll see whether Miss Le Marr can help us."

De Costa-Coudray and Gwendolyn Le Marr were called into the sound-proof room.

FORMAL introductions over, Farrington began, "Miss Le Marr, I asked Captain Houghton to bring you to this office as soon as possible since you happen to be the central figure of a most unusual event that falls under our jurisdiction."

"Please be assured," continued Rawlinson, when Farrington paused, "that the Space Guards will do anything within their power to bring your father back safe and sound. In order to be able to do this, we wish to ask you some questions that occurred to us in the meantime. I am obliged to inform you that you do not have to answer our questions if you do not want to, but have the legal right to make statements only to the police authorities of your country."

The girl shook her head.

"Please ask all the questions you want, your Excellency," she said. "I'll answer them to the best of my knowledge and hope they will help you find the people who did all this."

"I am glad to hear that," answered Farrington, bowing politely, "it will make our task much easier."

He took a folder from his desk, containing among other documents the reports transmitted to Earth via space-phone by O'Flanahan and began: "You say here that you did not see your father very often. Was there any particular reason for this?"

"No," said the girl. "No reason at all, if you mean whether our family life was disturbed by something. When my mother was still alive—you probably know that she died when I was about eight years old—we were living in Paris

where I was born. I went to school in this city and later attended lectures at the Sorbonne. I love Paris—but father longed for a warmer climate. He had lived for so many years in tropical countries that Europe was too cold for him. Of course he wanted to take me with him when he moved into his new home, but I didn't want to go. In fact, I hate the tropics. Always heat, crawling things, beetles that march across the floor, snakes that suddenly appear on the porch, lizards at day and frogs at night, and mosquitoes all the time round—”

THE MEN smiled, especially De Costa-Coudray who felt flattered with the girl's remarks about Paris. The law of the Space Guards read that outside the stratosphere of Earth they were not French, or American, or German, or anything else—except by language—but simply Space Guards, sworn to uphold the Interplanetary Laws and to help and aid other humans in any conceivable way. But now he was on Earth and, although Space Guard Headquarters was legally a point outside Earth, a little patriotism seemed permissible.

“Well,” continued Farrington, “so you lived in Paris, studying languages and art, as the files say, while your father had a large home on one of the Comoro Islands between Madagascar and the African Continent. You know, I suppose, what your father was doing there.”

“Of course. He talked about it constantly. He was experimenting to invent a new rocket fuel that would make spaceships more efficient.”

“Just what did he do?” asked Helmer.

“I do not know any details. I am not interested in space flight. Earth is so beautiful that I think it's silly to go somewhere else. I remember that father once said that the efficiency of fuels should be increased in two ways; first, by increasing the exhaust velocity, and

second, by increasing the density of the fuel.”

“He is right, of course,” murmured Helmer, slightly annoyed by the girl's remarks about his beloved science of space flight.

Rawlinson was busily reading the report, “You stated here,” he said, “that your father gave you a radiophone call one day and told you that he had his invention completed. He wanted you to postpone your planned visit for three weeks, because he wanted to fly to Cape Town to have his own spaceship, the *Tahiti*, rebuilt. After this he took a vacation of a few weeks during which time you visited him. Then he flew to Cape Town again, intending to make a trial flight, but did not find the changes completed. He then lived in Cape Town for some time to supervise the work himself.”

“Yes,” said the girl when Rawlinson paused for a moment. “He used to give me a radiophone call from Cape Town every Sunday morning. He also told me that United Spaceways was not interested in his new invention.”

Rawlinson and Farrington exchanged knowing glances. Le Marr had lately been on bad terms with United Spaceways. Originally he had worked for them. His own spaceship, the *Tahiti*, had been built by United. They had fitted it out as a laboratory of the void when he developed his famous meteorite detectors. Finally, they had bought the invention, giving him the ship as part of the purchasing price. But another Le Marr invention had gone to Interplanetary, and since then United treated Le Marr indifferently.

“You stated that Interplanetary turned his offer down too,” snapped Farrington.

“So I was told by my father,” answered the girl. “He said that he had the chemical industries against him, because his new propulsion mechanism

did not use chemical fuels. He was rather downhearted when he decided to seek the support of the electrical industries."

"Did he need the money?" inquired Houghton.

"No," she replied. "I do not know his financial status, but I do know that he did not depend on selling his latest invention. I also know that he wished to sell it not so much on account of money, but because he said that a new chapter in the history of space flight would start with the introduction of the Le Marr drive. He actually believed in reaching Saturn and even Uranus."

HELMER looked at her doubtfully. If somebody else had made such a statement he would have laughed openly. Only the Le Marr name made him behave politely.

"We now come to the important part of your story," announced Rawlinson. "Around Christmas last year, you visited your father again, Miss Le Marr, when visitors announced themselves by radio-phone. These visitors came the same night, first a young man who was evidently somebody's secretary, and then a lady who was introduced by this young man as 'Madame Sima'. This mysterious lady had a long private conversation with your father, who told you afterwards that she had bought his latest invention. Is this correct?"

"Not quite. Madame Sima did not buy the invention at once, but made arrangements for a practical demonstration. Besides, she only acted as a representative for somebody else. This other person was willing to deposit a bond—I do not know exactly how much, but it was a large amount of money—and to pay the expense of the demonstration. I heard them agree to make the trial flight within the shortest possible time. After Madame Sima had left, father asked me to go with him on this trial flight.

Knowing how proud he was, I finally agreed to accompany him, which pleased him very much. Two days later he received a letter from his banker, informing him that the bond had been deposited. Father then made the necessary arrangements to turn the *Tahiti* over to the prospective buyer for shipment to another port. Meanwhile, we flew to Mozambique and had a glorious time until Madame Sima called for us."

"Then—" said Farrington encouragingly.

"Then we were brought to a rather large airplane that took off soon, and climbed to a pretty high level. The moon was shining on the clouds. It looked very beautiful!"

"Who else was on board?" asked Farrington, and:

"You did not know where you were flying?" said Rawlinson.

"We had been told that we were flying to an island."

"You were not interested to know which one? There are several islands in the oceans of Earth."

"Oh, I really didn't care. And there was nobody in the cabin. Only father, a colored maid, the pilot, Madame Sima and I."

Rawlinson nodded. "You stated that both of you, your father as well as yourself, finally went to sleep. When you woke up, you were in a small valley where it was very cold."

"Very cold," nodded the girl. "Madame Sima gave me a beautiful fur coat to wear. Father said the valley looked like an extinct volcano to him. I was brought into a shack where Madame Sima kept me company. The shack was poorly furnished, but warm, and I stayed there all day long. At night father came back. He said that the *Tahiti* was ready to take off. I was led into the ship. The men disappeared in the control room while I stayed with Madame Sima in the main cabin. Occasionally

she left me alone for an hour or so. When I saw father and the gentleman who was going to buy the ship I told them that I did not enjoy the trip at all. But they seemed very much pleased with the performance of the ship. They told me that we would pass the Moon in a few hours."

"You must have felt a tremendous acceleration all the time," said Farrington.

"Yes, I did feel pretty heavy. Sometimes it was hard to move. Shortly after dinner I began to feel ill; it was like seasickness. I told Madame Sima about it and she advised me to go to bed at once. She said she'd give me a medicine against it that would make me sleep. I saw her dissolving a tiny pink pill in water—"

"*Atresomniol*, doubtlessly," said De Costa-Coudray, and the others nodded.

" . . . but I had a very bad dream. I was running and running and running and could not stop. And there was a sweet-smelling sticky rain that slowly drowned me. And I was so terribly seasick. When I woke up I was in the hospital on the Moon."

The men sat silent for a few seconds.

"This would be all, then, Miss Le Marr," said Farrington. "I thank you for coming and answering our questions. An orderly will bring you to your hotel. Please let us know if you change your address."

"I thank you, gentlemen," said Rawlinson to the three officers of the Space Guards. "You'll receive further orders."

They left the famed 72nd floor together. The girl and the orderly left the elevator at street level; De Costa-Coudray did the same. Helmer and Houghton went to the subway station in the basement of Headquarters. None of them said a word. Houghton's train came first. He went in, but before the door closed he turned around and said to Helmer: "Your witness!"

Helmer sighed.

III.

HOUGHTON was free of duty the next day.

He had just returned to his hotel from lunch when an orderly came. Indentifications exchanged, the orderly handed him a sealed letter. It took Houghton hardly ten minutes to translate it into open language, but its contents surprised him more than all the weighty official documents he had ever received. It read:

Tahiti found by several extra-terrestrial telescopes. Data now available allow computation of orbit touching ecliptic again far beyond orbit of Jupiter, probably close to orbit of Saturn. Report to HQ 72nd floor tomorrow at noon.

Rawlinson.

Pondering the contents of the letter, and reading it over and over again, Houghton saw Helmer's name in the lower left hand corner, together with a few letters indicating that he had received the same message.

Houghton decided that it would not do any harm to go to Helmer's office and talk to him; he did not feel very happy with his free day.

Helmer was in his office when Houghton arrived, and he was sincerely glad to see him. But otherwise he was the saddest man on Earth.

"Houghton," he said, launching at once into a speech that left no doubt as to his feelings, "I am happy you came. I was thinking of coming to you, but did not want to spoil your free day. Say, did ever an honest Space Guard have an assignment that was so utterly cock-eyed as ours? What a case! An unprecedented crime, involving one of the few men who are real inventors such as humanity needs. A spaceship that makes a Moon trip in hardly more than a day. A hidden spaceship repair shop in the crater of an extinct volcano. And a witness who does not know whether

she got to that crater by subway or in a baby carriage."

"Calm down, Helmer, calm down. I know how you feel because I feel the same. But crying doesn't help us any. Let's sit down and try to figure this thing out from the few facts our witness knows."

"It can't be done," Houghton sighed. "For example: I tried to find out where the *Tahiti* took off on her trial flight. We know a few things about that place. First of all, it is an island with an extinct volcano on it. Second, it was cold there and reached by airplane in about ten hours from Mozambique. I thought that it should be easy to find. I wanted to rule out all islands farther than ten hours' flight from Mozambique. Then I wanted to eliminate those without volcanoes. But how shall I know how many kilometers there are in ten hours of flight or less—the pilot may have circled unnecessarily—if I do not know the type of airplane! The fastest type can almost make the East Indies in ten hours—though I admit that they are not cold."

He had to pause for breath.

"Did you see Scott?" Houghton asked innocently.

"Unfortunately I did," stormed Helmer. "He is about as good a rocket expert as little Gwendolyn is a witness. I went to see him this morning, hoping that he had been able to reconstruct Le Marr's principle from the notes he got, but he couldn't tell me a thing. According to him, the Le Marr propulsor is just a mechanism to consume electric energy. I strongly suspect that he can't read equations anymore. Since he became boss of United's research labs for his improvements of the ozone-hyzone drive, he must have slept without noticeable interruptions."

"Listen, Helmer," said Houghton. "We've got to do *something*. Let's go together to see Scott again. Let's take Le Marr—the girl, I mean—along. She

has the right to turn the documents over to us, and I think that we'll be able to get at least an inkling of the ideas."

Helmer agreed somewhat reluctantly and Houghton took the receiver of the telephone to call Gwendolyn Le Marr and Dr. Sinclair Scott for a meeting. He learned that neither of them could be found; both had left the message that they would not return until late.

Houghton and Helmer went to a movie together.

THERE WAS another surprise in store for Houghton when he reported to headquarters the next day. He was immediately admitted to the 72nd floor, where he found Gwendolyn Le Marr and Helmer waiting for him. When Houghton arrived, they were called into Rawlinson's office. Houghton learned that the girl had called Rawlinson up to tell him of a minor discovery she had made. Rawlinson had told her that Houghton was to report at his office at noon, and had asked her to come too.

Upon being asked, she gave her cigarette case to Rawlinson, asking him to open it. It was a beautiful piece, slightly too large for a lady. Her father had given it to her. It showed a rocket-ship on the outside, made in bas relief of yellow gold. The cigarette case itself was of white gold, having a dull finish on the inside. There was an inscription on the inside, only a few short lines.

"You see, your Excellency," she said, "an inscription was always there, but last night I happened to look at it—and saw these figures I had never noticed before. It is certainly my father's handwriting. I remember now that he asked me for a cigarette while on board the *Tahiti*. I passed the case to him, and he took it with him into the control room. Later, he gave it back to me. He must have written those figures during that time."

Rawlinson looked closely at the figures. They read: $54^{\circ} 26' S.$ & $3^{\circ} 24' E.$

Farrington went to his desk and repeated the figures, speaking into a microphone. Obviously they referred to a locality—presumably on Earth.

Only a few minutes later, a telephone rang. Farrington pressed the yellow button that made it loud-speaking and ordered the information department on the other end of the line to proceed.

"54 degrees 26 minutes South and three degrees 24 minutes East," a voice said, "is a spot in the Antarctic Ocean, a few hundred miles south of Cape Town. There is nothing remarkable known about this spot and the locality in quest is probably 54° 26' 4" S. and 3° 24' 2" E., the geographical center of Bouvet Island, determined in 1898 by the German oceanographic survey vessel *Valdivia*. Bouvet Island was discovered in 1739 by the Frenchman Lozier Bouvet, who believed it to be a cape of a large Southern Continent. Therefore he termed it 'Cap de la Circoncision'. It was then lost to geography until rediscovered by the *Valdivia*. Politically, it now belongs to Norway. It was occupied by this country in 1925. Due to continuous mists and clouds it is hard to find, even from the air. It consists mainly of one large extinct volcano, the interior of which is still unexplored. A large glacier—"

"Enough," said Rawlinson, and Farrington disconnected the telephone.

"Miss Le Marr," said Rawlinson, as soon as Farrington had returned to the table, "I called you to this office not only on account of your discovery. I have some news for you that is, I am afraid to say, discouraging. An SG cruiser, returning from Eros, received a space-phone call from another ship flying in an orbit high above the plane of the ecliptic. This ship turned out to be the *Tahiti*, and a voice asked whether you had been found. Fortunately, the captain of the cruiser was informed and answered in the affirmative. Asking the usual question about name of calling

ship and destination, he received the answer 'SS *Tahiti*', bound for the system of Saturn.' Then the connection broke off."

"Why didn't they follow?" asked the girl.

"Because the two ships were millions of kilometers apart, and had velocities opposite to each other. It's impossible to turn a spaceship around in full flight. There is not enough fuel to do so."

The girl simply shook her head. She did not like to argue with these people that "insanely insisted" that "perfectly obvious things" could not be done. Why, one could turn an airplane around to follow another airplane; a spaceship, being so much faster, must certainly be able to do the same.

"Le Marr probably had to plot a course for these people," said Houghton, low-voiced, to Helmer. "He had to have the point of departure, and they had to tell him the truth. I think he suspected something, and that's why he wrote this into the cigarette case where he could hope that it would pass unnoticed, but where his daughter would see it sooner or later."

Farrington despatched an airplane to Bouvet Island from Spaceport Johannesburg. Rawlinson tried to console Gwendolyn Le Marr in the meantime, and the girl felt miserable and flattered at the same time. Miserable, because these mighty men made "excuses" she refused to believe or to understand. Flattered, because they paid so much attention to her. It did not occur to her that the attention of the Space Guards was centered upon her father. Gwendolyn Le Marr was on Earth; the Space Guards were not responsible for her. As far as she was concerned, they had done their duty. She was only a witness—and a miserable one at that.

"We know a number of things now, Miss Le Marr," said Rawlinson. "We know the place of departure, we know the destination of the *Tahiti*. It remains

to find the people who did it, and their motives. Some time today, *Society News Photo* will send you files of pictures of society ladies. Please look them over and try to find one or several that bears resemblance to Madame Sima."

"Please bring these photographs with you tomorrow," continued Farrington. "And please go with Captains Houghton and Helmer to see Dr. Scott."

"Gentlemen, engineering conference to-morrow at 4 p. m., hall 65-14."

DR. SINCLAIR SCOTT, head of Research Laboratories of United Spaceways, disliked his assignment. To work one's way through such a maze of letters, notes and manuscripts as had been turned over to him by Miss Le Marr was a tough job in itself. It was a tougher job to do so within three days—especially if one did not understand the meaning of the other man's theories. And it was simply outrageous to have to face a cross-examination by two people like Helmer and Houghton—especially Helmer, who kept finding violations in United's space-liners.

He would have loved to let Helmer wait for half an hour at least when his secretary announced the arrival of the Space Guards, but he could not do it. With a sigh, he told his secretary to show them in.

Helmer pretended to be in the best of moods when he greeted his old enemy Scott. "Hello, my dear Dr. Scott," he shouted with a profound bass voice. "I am certainly very glad to have again the pleasure and the honor to see you in person. As you see, I brought Captain Houghton and Miss Le Marr with me. I want them to hear directly what you were able to find out."

Scott just managed to keep polite. He decided to make the meeting that did not please him a bit as brief as possible, no matter at what expense to his reputation.

"Miss Le Marr," he said, hoping to find understanding, "I am sorry to say that the notes and manuscripts you turned over to me are too fragmentary to allow any conclusions. Offhand, I am tempted to say that such an apparatus does not work—more, that it cannot possibly work."

"I see," said the girl icily. "But it did work."

"I don't doubt your word, Miss Le Marr," Scott answered hurriedly. "But as I said before, the notes are too fragmentary to allow any conclusions. If you saw it work, all right. But nobody"—there was emphasis on this word—"could say how it worked from these notes alone."

"You told me yesterday," said Helmer, "that Dr. Le Marr used a liquid of great specific weight that was sprayed into combustion chambers either in a vaporized state, or to be vaporized in the chamber. Around these chambers, an electric field would be built up that would impart an exhaust velocity of somewhere near 20 kilometers per second to the fuel spray."

"Yes," admitted Scott, "I gathered that much. Not from these notes, though, but from a conference I once had with Dr. Le Marr. At that time, I asked him whether he had actually done it, and he replied that it was only theory. I now believe that he has succeeded in turning his theory into practical performance."

"Anything else you can suggest?" asked Houghton.

"No!" Scott's voice had an air of finality.

"Gentlemen," he said, "the Honorable Donald T. Rawlinson requested my expert report on this matter. My opinion is contained in this report which is now being delivered to Commander-General Rawlinson's office. More, I cannot say."

Houghton and Helmer rose stiffly; the girl did likewise. Together they left

Scott's office and walked toward their car. It was the girl who broke the silence.

"Captain Houghton, please tell me what that means!"

"It means that your father's notes were turned over to the wrong person. After all, I can't even blame him. He is head of United's Research Laboratories. They turned your father's offer down, not for scientific reasons, but on account of some economic tie-up we don't know. Now, we can't very well expect Scott to say that his own firm was wrong."

"What can you do now?"

"Look into the matter ourselves," said Houghton firmly. "Our experts know at least as much as Scott. But it was better for several reasons to ask a commercial expert first."

"Even if he is a nut," said Helmer grimly and excused himself to go to headquarters and see Le Marr's notes as soon as possible for himself.

HOUGHTON did not feel especially cheerful when he was on his way to the engineering conference. Rawlinson and Farrington had promoted him to "Center Commander"; he had all the resources of the Space Guards at his disposal; the *Dragon*, a brand new SG cruiser of the latest design had been given to him; he had the right to pick any man of the Space Guards for a crew—but with all this went the strict order to organize and head an expedition to the Saturnian system as quickly as possible. Houghton did not think—and neither did Rawlinson nor Farrington—that "Saturnian System" meant Saturn. The *Tahiti*, if she was going to land, would not land on Saturn; so much was certain. Most probably Titan, largest moon of Saturn, would be the goal. Saturn or Titan, or any other of Saturn's moons—it did not matter a bit. They were all inaccessible for ordinary rocket-ships. Too far away from the

Sun. Even if a ship could carry the necessary fuel load—which it most certainly could not—the trip would take years and years.

The information department had supplied him with what information they had on Saturn and on its moons. It was meager enough—save for the elements of the orbits of the moons, which was excellent. Quite automatically, Houghton had picked a crew. The personnel department was just now busy trying to locate the men he had selected and to inform them and their superiors that they had to stand by for a special assignment.

There was only one slight hope. The hope that Helmer would succeed in figuring out how the Le Marr Drive worked. If he could, they might be able to build a propulsion mechanism equal to that of the *Tahiti* and to install it in the *Dragon*. If a commercial firm had done this in a few weeks, the Space Guards could probably do it in as many days, having no worries about preference of earlier orders.

Houghton called Helmer first, after he had opened the conference.

"To make matters easy and tales short," said Helmer, "I succeeded in determining Dr. Le Marr's principle. But I have no hope of duplicating it within a reasonable period of time. Shall I relate the principles?"

"Everybody present is sworn to secrecy," replied Houghton, "and it might give somebody an idea. Proceed!"

"Dr. Le Marr—humanity is to be complimented that it produced a genius like him—does not use any ordinary exploding or combusting fuel, but a liquid of much greater density—which is a great advantage in itself. The base of his fuel is well known to everybody; it is mercury. By a certain electrical treatment—which is described only very sketchily—in the presence of catalysts—which are not named at all—he changed ordinary mercury into a new 'element' which is probably still a metal, but not

a liquid any longer, but a fine dust. Each particle of this dust is one molecule of gigantic dimensions—or rather a long chain of molecules. As ordinary liquid isoprene changes to rubber after polymerization, so mercury changes to dust of the specific weight 27.7 under this treatment. I do not know whether it is actually a polymerization of mercury molecules, brought about by supercharging the atoms with free electrons, or whether it is just another, yet-unnamed change of molecular structure that makes it a storehouse of electrons. Anyway, thus Dr. Le Marr produces the fuel he calls *mercuron*. His combustion chambers are merely long tubes; a very small rocket motor of the customary construction shoots a jet of hot gases through them. The reaction of this motor is almost negligible, amounting to not more than about a hundred pounds. But the fine *mercuron* powder that dribbles into this stream of hot gases is heated up and carried to the rear end of the tube. There, a powerful electric field disrupts the *mercuron* and changes it instantly into mercury—rather into monatomic mercury vapor."

Helmer paused for an instant and added dryly: "Exhaust velocity—around 65 kilometers per second."

The rocket experts present opened their mouths and forgot to close them again. *Sixty-five kilometers exhaust velocity, specific weight of the exhaust around fourteen!* Any reasonably well constructed ship could go to Uranus with that. And at present, even Jupiter's moons could only be reached by ships that stopped on some large asteroid for re-fueling.

"No hope to duplicate it with the data on hand within a few weeks, eh Helmer?"

"None at all!"

"**ALL RIGHT.** Gentlemen, we have got to do it too. With *eternite* fuel, try to find a way. I figured it out already

that, even without return trip, the ship has to carry about 220 times its own dead weight in fuel."

"The limit is 46 times," said Hansen, one of the oldest and most experienced designers of the Space Guards.

"I know—but I need a ship that carries a fuel load 220 times as heavy as its own dead weight."

"There is a comet approaching the sun," said Chalupski, a young astronomer who had been called to the meeting to supply astronomical data if and when needed. "In three months or so, it will have passed its perihelion and cross the orbit of our planet not far from Earth on its way outward in the Solar System. Its aphelion is just inside the orbit of Uranus. Maybe it can be used to carry the spaceship to the orbit of Saturn."

"Three months!" repeated Gwendolyn Le Marr, who had been invited for legal reasons, in spite of Helmer's unofficial remarks. "Why, that is much too late."

"Besides it won't work," stated Helmer. "To jump the comet near the orbit of Earth needs as much speed as to make the trip directly."

Chalupski felt very much embarrassed; impressed by the magnitude of the figures mentioned, he had made an elementary mistake.

Gwendolyn Le Marr did not understand. She looked at Helmer questioningly and Helmer felt like explaining to her.

"You see, reaching a certain point in space from another point is always a question of speed. One piece of matter—the comet—is crossing the Earth's orbit with enough speed to go against the attraction of the Sun to Saturn or to Uranus. Another piece of matter—the spaceship—must attain the speed of the comet to land on it. But if it does attain that speed, it does not need the comet. It can make the trip alone."

"But the ships of the famous SG Men are too slow to do this, aren't they?"

They cannot reach my father and his Tahiti."

"Which goes to show that your father is the greater genius," said Houghton, who saw that Helmer, who simply could not understand that anybody could not understand the laws of space travel, was going to explode like a choked rocket motor.

But the girl, of general nervous disposition and, since her adventure on the Moon, frightened and uncertain of everything, did not calm down so easily. "Which should tend to increase your efforts to rescue him!" she stormed. "You simply don't *dare* to go that far."

"You mean the power of our rockets does not reach that far," corrected Houghton, who had already acquired some practice in speaking to her. "I just don't see how it can be helped; no ship can carry enough fuel. It is like a man setting out to cross a trackless desert. He can't go farther than the food he is able to carry lasts."

"I'd give him a push-cart," snapped the girl.

Houghton started to answer, but didn't. Instead he looked at Helmer, called Hansen's name without knowing that he did it. "Give him a push-cart," he said. "Give him a push-cart. Give the ship a large tank, outside, that it pushes through space—no drums that increase weight, no tanks that are heavy because they have to stand pressure. Simply a big, thin shell filled with fuel—and almost no dead weight."

Helmer understood at once. "Connect it with the ship after she had lifted from Earth, fuel the ship again too, go from circular orbit around the planet into an orbit of the hyperbolic 'twenty' class—Houghton, I see a possibility!"

It was in this moment that Houghton began to issue orders in a steady stream. There were forty people in the conference; within minutes he found jobs for every one of them, to be done in utmost hurry, but with utter care. Houghton

issued orders for five full weeks. One mistake he had made; he promised the girl to let her take off with them. But after five weeks the ship was ready—

THE *Dragon*—ten thousand miles above the uppermost layers of the atmosphere—began to leave the shadow of the Earth.

While Houghton watched the rows of gauges at the instrument board, and Helmer kept an eye on the Le Marr meteorite detectors, Gwendolyn Le Marr stood at the window and watched the spectacle that had been termed the "diamond ring".

The Earth was like a black hole in the starred sky; only the absence of stars suggesting that there was something huge in space. Suddenly flames seemed to burst forth on one side of the black hole. The rays of the sun, still shielded off by the bulk of the planet. The glow swiftly surrounded the Earth; all her atmosphere seemed to be luminescent and soon the Sun appeared with majestic splendor. The Earth now really looked like a gigantic diamond ring in the void. A ring that seemed to embrace the entire universe.

The girl had seen this picture once in reality. She had seen it about a hundred times in the movies; but it was always new, always awe-inspiring and utterly impressive.

Now that the Sun had risen—or rather the ship had definitely left the shadow of the Earth—they would not see it so close again for at least a year to come. The girl shuddered; she had an attack of "space-fright" and it was only her nervous defiance that kept her from crying. Houghton and Helmer came to the main cabin when she was just closing the window shutter. They saw well how she felt but concealed their thoughts.

"Don't you want to see the re-fueling?" asked Houghton.

"No!" she said—much too emphatic.

There was silence for a minute or two, then Helmer began busily to arrange cushions and prepare a hammock. One man of the crew brought a light space-suit.

"Are we ready?" asked the girl, her voice trembling with fear.

"Yes. We'll be on our way in less than half an hour." Helmer's face was stern.

"I suppose, Miss Le Marr, that you are acquainted with the meaning of the term 'biological stupor,'" said Houghton calmly.

"I've heard the term before," answered the girl, forcing herself to look calm, "but I'd like to know what it is."

"It's a slightly misleading term," Houghton explained soothingly. "It was coined by its inventor, the Dutch chemist and physician Dr. Willem Verspronck, around the time when the first Mars expeditions were made. You see, at that time they needed 258 days to reach Mars during opposition, then they had to wait 455 days until they could start the return trip, and were in space again for 258 days. It was soon found—as had been anticipated by psychologists—that people could not stand being together in the cramped quarters of a spaceship for almost a year without hating, and oftentimes actually killing, each other. Verspronck then discovered a drug which arrested life for long times without leaving any after-effects. You only have to swallow a few capsules of his *xenisol* and you fall asleep. Meanwhile, the temperature inside the ship is reduced to about freezing point, and the oxygen content of the air reduced to half of the normal percentage. Then life simply stands still until you are awakened by electric stimuli."

The girl nodded. "I understand. Since everybody sleeps there is no nervous friction. But why the space-suit?"

"Suppose a meteorite dents the hull

during the flight, and the air leaks out. It would mean the death of all aboard. In such a case, the space-suits protect the sleepers."

Gwendolyn Le Marr seemed to consider the explanation.

"All right, help me to get in," she said after a short while, pointing at the space-suit that was in readiness for her. Helmer helped her to don the armor while Houghton dissolved three tiny pills in water. The girl drank quickly. She realized that this was a means to overcome the fear which she would not admit to others and not even to herself. Five minutes later she was sound asleep.

THE TWO MEN grinned. "How much *atrosomniol* did you give her?"

"Enough for forty-eight hours. She'll wake up in the hospital and we'll be on our way. I hated to lie so atrociously, but we simply have no use for dead weight on this trip. Besides, she'd probably die of heart failure if things do not progress as smoothly as they do in the movies."

While Gwendolyn Le Marr slept soundly, a large spaceship of the Space Guards approached the *Dragon*. Soon the two ships were circling the planet less than a hundred feet apart. Their rocket motors occasionally belched a weak burst of flames, lasting only for seconds. The pilots had to match speeds so closely that the difference amounted to only a very few inches per minute—a ticklish job with velocities of about five miles per second. The two ships had to stay together closely, but they should not touch if it could possibly be avoided. One never knew just what amounts of kinetic energy had to be dissipated.

Finally, the fueler asked to have the air locks opened. Both crews had been waiting for the command; large doors flew open on both ships. A man in a space-suit appeared in the air locks of

the fueler and threw a small object across the gulf into the air lock of the *Dragon* where it was caught by powerful hands. It shot across as if it were a ball fired from a cannon, but it was only a small rubber balloon, filled with air and dragging a thin strand of elastic material behind it. The men on the *Dragon* pulled a heavier rubber rope across by means of this first thin strand. A large-sized hose for fueling followed, another one and another one. They

were connected with the three tanks of the *Dragon* from which fuel had been drained for the take off from Earth. While they were being refilled from the enormous tanks of the fuel-ship, a rubber tube six feet in diameter was stretched between the two ships.

When it was firmly attached, one could see that the two ships did not move as quietly through the void as it had seemed. The transfer of tons of fuel, the shifting of weights, and even



the movement caused by the men running from air lock to machinery and from machinery to air lock made the ships change their relative positions. Each gallon of fuel that flew through the hoses, and each movement of men tended to shift the center of mass of the ships. But since the center of mass could not be moved, the ships moved—they wobbled. And while the transfer of fuel tended to separate the ships, the mutual attraction tried to drag them together. It almost reminded of fueling on the high seas when the weather is not calm. The pilot of the fueler, however, was an expert in correcting the movements. He had done it so often that his fingers pressed the right buttons and moved the right levers almost automatically.

Meanwhile, the commander of the fueler came aboard the *Dragon* through the rubber tube. He wore his space-suit, and Helmer, attired likewise, greeted him at the air lock. Together they went to the control room, passing an internal air lock on the way. Houghton, without space-suit, was watching his dials, ready to jump away from the fueler whenever it should be necessary.

The commander of the fueler was intensely interested in the details of their flight. While the officers talked about orbits, angles of departure, relative velocities and coördinates of space, the crews removed the fuel hoses. The tanks of the *Dragon* were filled to capacity. So far, it was routine work to them, ships that had to make long distance trips to Mars, to Venus or to the larger asteroids often re-fueled in space after leaving the Earth. The new device was yet to come.

Weeks before the *Dragon* had left Earth, immediately following the decision made by Rawlinson and Farrington, several spaceships had begun to prepare a fuel reservoir in space for her. It consisted mainly of a huge sphere of magnesium alloy, 96 feet in diameter.

The ships had had to make a dozen trips to carry the sections of the sphere out into space where they revolved around the Earth. Then, mechanics in space-suits had put the sections of the sphere together, and fuelers had begun to bring loads of fuel to fill it. The *Dragon* had started from Earth soon after the report arrived that the sphere was filled to capacity.

ALLISON, the second engineer of the *Dragon* who was in charge of the fuel lines and fuel tanks, reported that they had finished re-fueling. The commander of the fueler shook hands with Houghton and Helmer and went back to his ship, taking the sleeping Gwendolyn Le Marr with him. Then both ships—no longer connected with each other—accelerated slowly to catch up with the fuel sphere that was circling Earth several thousand miles ahead of them. Houghton allowed the fueler to approach the sphere first; the mechanics had to be out in space when the *Dragon* arrived to make the necessary connections.

Again a painstaking battle for inches, centimeters and finally even millimeters of speed began for Houghton when he was finally close to the sphere. It was somewhat easier, however, because the sphere did not experience any shifts of weight as the fueler had. Therefore it remained apparently motionless in space.

Helmer, who had been waiting patiently till Houghton allowed him to open the air lock again, went out into space to watch the work of the mechanics closely. He had to be sure of every clamp, every bolt and every attachment. When he returned to the control room, he had nothing to complain of; as far as human knowledge went, the novel device should work.

A few minutes later, the fuel ship withdrew from the sphere, using its jets with utmost care so that they would not

touch either the *Dragon* or the fuel sphere. They switched on the beam of their space-phone and let it play on the *Dragon*. The loudspeakers emitted a "Bon Voyage" and three hoots of a siren. Then the fuel ship dropped from sight, preparing to land on Earth.

The *Dragon* was alone in space, but seven hours had to elapse until the trip could actually begin. In order to fly away from the Sun, they had to add velocity to the orbital velocity of the Earth, and it needed careful timing to get optimal results from prevailing conditions. There was already some velocity in the fuel sphere and in the ship. They had a velocity of about eight kilometers per second relative to the Earth. This velocity could be utilized in departing for Saturn if the departure took place at the right time. Compared to the velocity the ship would attain later, eight kilometers per second might seem little. But the mathematicians of the Space Guards knew very well that at the beginning of a voyage even so little as a thousand feet meant tons upon tons of fuel. Thousands of tons they saved in waiting these seven hours.

Since there was nothing to do that required immediate attention, Houghton ordered the crew to rest. An alarm system was set to awaken them one hour before the time of departure. Another alarm system connected with the meteorite detectors would burst into violent noise if a dangerously large meteorite came near.

There was none; events progressed as smoothly as could be expected from perfect machinery under favorable conditions. The crew, after being awakened by the automatic alarm system, quietly went on duty. They behaved as if it were only a trip to the Moon they had been ordered to make. Houghton and Helmer were in the control room, seated before the dual controls. Not that their presence was really necessary. A contact of the reliable electric clock would

automatically open the fuel valves of all stern rocket motors at the given instant and, exciting the ignition system simultaneously, set them working full blast until a certain amount of fuel was burned. Then the same clock would shut the valves—with the *Dragon* on her way to Saturn on the orbit computed, checked and rechecked and finally found satisfactory and possible and named XXIII H. The speed necessary to attain the orbit consisted of the orbital speed of the Earth, orbital speed of the fuel sphere and the ship on their orbit around the Earth, plus the reaction obtained from the combustion of so and so many thousand of kilograms of fuel. The angle between XXIII H. and ecliptic having been introduced in advance by the angle between the plane of the circular orbit of the fuel sphere and the equator of the Earth.

FIFTEEN MINUTES before departure, nine men pricked their arm veins with needles of hypodermic syringes, emptying four cc of *accelerine* into their blood-streams, a drug increasing their resistance against acceleration. There were six gravities to be stood for nine minutes. Trained men could do that without *accelerine* in their blood if strapped to shock-absorbing hammocks. But automatic machinery could only be relied upon if nothing failed. If something did not work as assumed in the formulae, all that automatic machinery could possibly do was to go dead instantly. Then pilots and crew had to be ready. Their jobs consisted of watching and doing nothing except in case of emergency.

They all felt slightly disappointed and relieved at the same time when after nine minutes of crushing weight—which their artificially numbed bodies hardly felt—and after a few minutes of waiting time, Houghton's voice announced via the loud-speakers: "Ship's company relieved from duty."

They assembled in the main cabin, seven powerfully built men in the blue and silver uniforms of the Space Guards, none of them with less than four golden stars on his collar, none of them with less than ten years of duty, none of them without experience on Mars, the accessible planet believed to offer conditions similar to those prevailing on Titan. Rather, it was believed that Titan, the largest moon of Saturn, ranging in size between Luna and Mars and circling its primary in a little less than sixteen Earth days with unknown length of day, would offer conditions similar to those on Mars.

The two commanders came to the cabin shortly afterward.

"Ship's company drop formalities," commanded Houghton. Then he continued smilingly, "Boys, we're off now. Up to now, everything went as smooth as a well-tempered love story. If everything else develops equally well we'll receive big praise afterward for nothing. Now raid the storage rooms, as soon as the *accelerine* wears off we'll go to sleep."

A meal that more than deserved the description "square" followed. It was taken at leisure. Then the men sat together, smoking and telling stories and jokes, reading and doing whatever they pleased until everyone was thoroughly tired and certain that the last trace of *accelerine* had disappeared from his system.

Houghton and Helmer left for the control room for another time, checking the readings of all the instruments. Meanwhile the men looked over the machines assigned to them. Half an hour later they again met in the main cabin.

Helmer called out their names: "Reaction engines, Donovan."

"Perfect, sir."

"Fuel tanks and lines, Allison."

"Perfect, sir."

"Space-phone and communications, Perin."

"Perfect, sir."

"Air and interior machinery, Wolf."

"Perfect, sir."

"Armament and space equipment, Clifton."

"Perfect, sir."

"Supplies, Van Leuwen."

"Perfect, sir."

"Electrical equipment, Buvitch."

"Perfect, sir."

"Orbit is perfect too," said Helmer, and Houghton gave the official order everybody knew would come.

"Don space-suits Regulation III and prepare for biological stupor."

The men donned the space suits Clifton had brought to the main cabin in the meantime and strapped themselves to their hammocks, after having made the necessary connections to admit electrical impulses to their bodies. They swallowed several capsules of *xenisol*—the real drug, not the sleep-producing *atrosomniol* Houghton had given to Gwendolyn Le Marr after a perfectly truthful explanation of the real procedure. Physicians had determined in advance how many capsules each man had to swallow to fall into artificial catalepsy for about 200 days.

A FEW MINUTES later the men started snoring, a noise that rapidly decreased and finally disappeared altogether as the crew passed from drugged sleep into the state of suspended animation. Only Houghton and Helmer were still awake. Silently they donned their own space-suits, silently they adjusted heating and air-purifying machinery to produce proper conditions for deep sleep.

While Houghton connected an alarm system for himself, Helmer left the ship and began loosening the fastenings that held ship and sphere together. Only a long, thin steel cable was finally left. He then strongly pushed against the sphere, feet pressing firmly against the ship. The sphere gave way and began to re-

cede from the ship, held only by the slowly unwinding cable. Helmer knew that it was mainly the ship that gave way since the sphere had a much greater mass. But that was unimportant. Ship and sphere would move in opposite directions until the two-mile-long cable was fully unwound. Then he returned to the interior of the ship, sealed the air lock firmly, and went to the control room. Houghton, who had watched the maneuver, was waiting for the cable to stretch full length.

"Will take another half hour or so," he said. "Better go to sleep now."

"All right, Houghton—Bon Voyage to all of us."

"I'll wake you up in time. Good night."

Houghton waited patiently until the last yard of cable had unwound. The sphere loomed two miles away now, looking like a large, perfectly smooth moon, save for the portion that was to connect with the ship. The cable stretched like a solidified ray of light between the two structures that raced through the void with a velocity of more than 70 kilometers per second relative to the Sun.

A few kilograms of fuel burned in one of the side combustion chambers, sent ship and sphere spinning around a common center of gravity much nearer to the sphere than to the ship. Houghton watched the needle of the gravity meter creep up while the reaction motor worked weakly. Three, four, four and a half, five—six—six and a half—six and three-quarter meters per second. Houghton switched the motor off. This was about a third less than gravity on Earth. It was enough.

Once more he went around in the silent ship that moved noiselessly through the void, spun noiselessly around the tremendous fuel supply and bore a deeply sleeping crew. Only a very few things were alive; the air machinery, the electric clocks, the ever-watchful detectors and the electric thermometer of the heat-

ing system. He had the visor plate of his helmet open. Through the opening came air that was already thin and cold. He felt chilly and went to his waiting hammock. He stuffed a small pillow inside the helmet under his head, connected his armor with the alarm system, strapped himself to the hammock, and took half a dozen of the capsules from the container.

Falling asleep he began to realize the real importance of their tremendous journey that led away from the Sun into realms beyond Mars and even beyond the orbits of Jupiter and his moons for the first time in human history.

IV.

HOUGHTON awoke when they were about three million kilometers from the point where orbit XXIII H. would cross the orbit of Saturn. It took him only a few minutes to remember where he was. The air was thin and chilly; his body felt cold and his fingers were so stiff that he could hardly make them close the visor of his space-suit. Waiting quietly, he felt his body resume its natural functions very, very slowly. When his fingers felt less stiff, he made the air regenerating unit of his space-suit work full power and switched on the heating coils. Soon he felt much better and began to loosen the straps that held him to his hammock.

He got up and pushed himself over to the control room. His still-sleepy eyes looked for the dials that registered everything he wanted to know. He closed a few switches and turned a few dials; normal temperature and normal air pressure began to build up inside the ship. Then he awakened Helmer and while he came to, Houghton stopped the spinning of the ship and hauled the fuel sphere close for direct connection. It was Helmer's first job to leave the ship through the air lock and fasten the large clamps that made a rigid unit of ship

and fuel sphere.

When he came back, the majority of the crew was awake and busily preparing a meal which was remarkable mainly on account of its quantity. They were all ravenously hungry, their bodies had used up energy during these 200 days comparable to about 20 hours of active life. Mealtime over, Houghton ordered everybody to his station while he and Helmer began to work on their instruments.

"Off coordinate A 200,000 kilometers," said Helmer after two hours of intense work. "Off B about 80,000 kilometers and C. about 5000 or 6000 kilometers—it's hard to measure the small difference."

The crew had meanwhile finished the examination of the ship itself and everything in it. There was nothing out of order as far as they had been able to discover. With everybody in readiness, Houghton and Helmer began to correct the deviations from the true orbit and finally gave the ship a strong push of short duration to force it into an orbit that would make it circle round Titan at a distance of about ten thousand kilometers from its surface.

They were careful to compute distance and speed of revolution in a way that would make them hard to see from the surface of the satellite. They did not know whether those others had weapons that would reach across six thousand miles of space; they did not know whether such weapons would be put into use if they existed. They knew practically nothing about those others they mentally called "the enemy"—they only knew that this "enemy" had to be destroyed or captured and that Dr. Le Marr had to be rescued alive and unhurt at any cost. If they only knew whether those others had landed on Titan and where. Then they would be able to plot a course that would keep them out of sight of the men aboard the *Tahiti*. They had to stay in the day-

light sky—but nobody could tell whether those others had night or day the moment the *Dragon* established herself at a certain point in the void. It did not make matters easier that they also did not know the exact period of Titan's rotation. It was certain that the satellite had an axial rotation and did not face its primary as the Moon faces the Earth, but the guesses as to the length of this rotation ranged from six hours to four days. The period was not determined—Houghton had two pounds of astronomical instructions and questions in his locker, Van Stijnberg and his colleagues wanted very many things determined or checked—but even if it were, it would not help the Space Guards any. Besides, day and night probably did not matter very much so far out in the Solar System. They could have Sun—"night" down there but Saturn—"day", and it might be hard to tell the difference without looking at the sky.

At long last, the two men were satisfied with the job they had done. The *Dragon* was swinging around Titan in a carefully laid orbit. Houghton filled all the fuel tanks of the ship to capacity from the sphere—then he disconnected his ship, fuel lines, supports, rope and all from the sphere. This could be done from the control board by letting a compartment of the prow go with the sphere. Still, sphere and ship remained close to each other.

The forward jets of the ship flamed for just one moment; a faint shock seemed to run through the ship. At once, the large sphere began seemingly to dwindle, receding from the ship. Actually the sphere continued on its circular orbit; it was the ship that was left behind and began to fall in a long spiral toward Titan.

"Ready for landing maneuvers," shouted Helmer into the microphone, and the loud speakers echoed it all through the ship. Minutes of savage deceleration followed, interspersed by

moments of weightlessness. Heavy rocket engines issued staccato thunder—then a light shock that had not been felt at all if not accentuated by a long silence.

Houghton broke this silence with a calm announcement: "SG Cruiser *Dragon* landed on Titan."

THEY KEPT perfectly quiet during the first two days. It was to them a new world with conditions almost, if not completely, unknown. They needed these two days to test first ship, armament and space-suits, then atmosphere, temperature and the various and complex changes of "day" and "night". It was fairly cold even during the "day", but not as cold as astronomers on Earth and Moon had imagined. Houghton found conditions pretty similar to those on Mars. Sometimes strong winds sprang up, but they were not so strong as to do serious damage.

After two days, Helmer and Houghton decided that it was safe to venture into the open, protected by light space-suits and, of course, heavily armed. There was no need to invite unknown dangers just to be heroic. When they stepped out on the ground of the satellite, half of Saturn was above the horizon, the mighty sweep of the rings reaching up to the zenith like the tail of some gigantic comet. The ship, fantastically and weirdly illuminated by the light of Saturn and by the rays of the distant sun, was resting in the middle of a valley surrounded by high mountains of blackish rock. Without paying much attention to the weird effects of this strange landscape, Houghton and Helmer, who had both lived under the green sky of Mars and seen the glory of the heavens from airless moons, ordered a number of instruments to be brought from the ship and set up in the open. Among the instruments, there was a small but powerful telescope of the type spacemen called "comet-trappers".

While the crew was thus busy, Houghton and Helmer went cautiously on their first trip of exploration. Two large passes and a small one led from the valley, presumably into other valleys. First they tried the one nearest to the ship. Walking was not difficult, due to the slight gravity of the satellite, but it was hard to discern distant forms in the uncertain light.

When they returned to the *Dragon* many hours later, they had seen a lot of interesting things and were able to instruct the crew about some of the main features of this part of Titan they had landed on. But they had not found—nor expected to find—the least trace of the "enemy".

After sixteen days on Titan they had searched more than half a dozen valleys accessible from their own without finding the faintest trace of human life. They had made all the observations astronomers on Earth and Moon were waiting for; they had collected specimens of the pale-green-and-yellow creeping vegetation of the floors of the valleys; they had found and battled the wormy or snakelike things that lived in this vegetation. They had fought pale yellow insects looking somewhat like cross breeds of ants and lobsters. Ferocious biters they were, and their average length of ten inches did not make them more pleasant. The men from Earth suspected that they might grow much larger if only there were more food available for them.

The Space Guards had marveled at the many-trunked trees that grew on the slopes of the mountains, sending a new trunk down from a branch whenever the footing became uncertain. The men had tried to catch the small animals that ran away from them in fifty-yard-long leaps and had been unsuccessful so far. And they had lost one man who had been overwhelmed by the sudden and unexpected attack of a huge carapaced animal similar to the terrestrial horse-

shoe crab Houghton knew well from American waters. Only they grew to a length of four yards here on Titan, having a domed carapace two yards high. The Space Guards had seen everything that was to be seen in those valleys; they had done everything an exploring can do—but they had not found a trace of human life.

HOUGHTON was contemplating going out into space with his ship and landing on another part of Titan to continue the search. Too bad that a spaceship could not cruise in air like a dirigible. Everything would be so much easier. Maybe the "enemy" had not landed on Titan at all. Houghton was pondering the possibility that they might have picked another one of the fourteen moons of Saturn, though only Titan had an appreciable size. He hoped to find a large forest somewhere with wood that would burn in the Titanian atmosphere. If so, he would set it afire with a rocket blast to attract the "enemy".

He figured the amount of fuel he would need for take-off and landing. The supply he had in his tanks was sufficient even for a second take-off after a second landing. He would actually save fuel if he did not fill his tanks from the sphere again, since he would have a lighter ship to land and to take-off for a second time. But he wanted to ascertain the position of the sphere before taking off, as he used to do every few hours. While walking toward the telescope he realized that he began to grow tired of this unearthly landscape. He did not like to admit it, even to himself, but it was a fact. He was glad now that every one of his men had Martian experience and therefore nerves that could stand a lot of weird scenery without weakening.

Squatting behind the telescope he tried to find the fuel sphere. It always looked like a perfect little planet of high albedo, since its hull was highly pol-

ished. Its visibility would have been less if it had been painted with some light-absorbing color. But a light-absorbing color was also a heat-absorbing color, and the fuel had to be kept at a uniform cool temperature.

Houghton did not find the little moon at once, but to his immense surprise he saw the clear image of a spaceship. Slowly it moved out of the field of vision of the powerful instrument. Houghton's surprise was so great that he lost sight of it for a moment. But he found it again, stared at it—No doubt, the ship was the *Tahiti*. Presently he also saw the fuel sphere. Slowly the *Tahiti* was maneuvering closer. Houghton's lips pressed together tightly. His fears that the "enemy" would see the fuel sphere were justified now. They had seen it, and having seen it, they had taken off to investigate. Well, at least he might get a clue now as to where they were hiding.

He watched tensely; slowly, ever so slowly, the *Tahiti* crept up to the sphere. Houghton could not help smiling for a split second. It looked for all the world like a goldfish trying to swallow a rubber ball that had dropped into its pond. Houghton's face became more and more grim as he watched. The *Tahiti* maneuvered near the fuel sphere, actually touched it and then turned around, her prow touching the sphere from the other side. Then the exhaust nozzles flamed, upsetting the carefully calculated orbit of the sphere. It slipped away underneath the ship, following the attraction of Titan's gravitational field and trying to establish itself in another orbit, nearer to the satellite. The spaceship followed. Again the exhaust nozzles flamed, the ultra-powerful rocket engines exerting all their thrust upon the sphere, braking its velocity.

Both ship and sphere began to drop toward the surface of Titan. After a few seconds the ship, still falling, turned around again, and when her rocket mo-

tors started to shoot out streams of flame, she swiftly departed from the falling sphere.

Houghton tried to follow the ship with his telescope, but she soon disappeared beyond the horizon and he had to give up. Two minutes he wasted sweeping the skies with his instrument in search for the sphere, then he called alarm of the first order. "Everybody into the cruiser at once, taking all equipment along. Prepare for immediate take-off!"

EXACTLY one hundred and fifty seconds later he sat on the complicated dash board of the *Dragon*. Through the window he saw two of his men running at top speed toward the still open air lock. In another sixty seconds they were inside—an instrument told him of the closing of the outer door. The *Dragon* was ready for action. And act she did.

Searing jets of flame tore the creeping pale-green vegetation from the soil of the moon of Saturn, burning and scorching wormlike things and antlike biters alike, hurling one of the carapaced monsters into the air. The ship rocked and shook; another still stronger burst of flame followed, and she shot up like a fiery dragon of myth. Four times Earth's gravity, angle of elevation seventy-six degrees. Ninety-five seconds full power on all B-type stern jets. Heating system to zero, cooling machinery full power—stern B jets to zero—five minutes free flight to don Regulation III space-suits, heaviest type—coördinate wheel Two 2500 full revolutions to make longitudinal axis of ship parallel with Titan's surface—now stern A jets quarter power for thirty seconds—check speed—one stern B jet tenth of full power until circular velocity of Titan is attained!

Houghton and Helmer were handling the controls of the *Dragon* with utter calmness, each one shouting to the other

what he did and informing the crew via the loudspeakers at the same time.

"Circular velocity of Titan attained, all jets zero," stated Houghton quietly.

Helmer added, "Man guns on small air locks."

Houghton leaned back in his chair. There was nothing he could do.

"Wow," he said to Helmer, "that was a speedy getaway. Maybe we made it a bit too speedy, but no harm done with it. Under no circumstances did I want to be down there when that bomb hits. Even if it does not drop into our valley but crashes on the antipodes of our carapaced beasts, it might make life uncomfortable by means of a few little earthquakes."

"Could you see the enemy?" asked Helmer.

"Sorry, I couldn't. I suppose they do as we do—wait out in space till the explosion is over."

"You think, then, that they guessed the nature of the fuel sphere at once? Don't forget, it's a brand new invention."

"I think they did guess it," said Helmer immediately afterward answering himself. "There were too many valve designations painted on the hull. They had only to be close enough to read them and they could figure it all out in no time."

"Unfortunately they did. Now we must watch and wait!"

It was a small reward for the Space Guards that they could watch the precious fuel sphere of theirs explode in one tremendous flash. The sphere hit Titan on its night side; the *Dragon* had just circled the satellite again and was almost above the center of explosion. The men saw an unimaginably large blot of white flame leap up from the dark globe. For a second or more the surrounding mountains were clearly visible. They saw spires of rock starting to topple—then everything went black again.

"There goes our return-trip ticket,"

said one of the men.

Houghton heard him; he voiced his own thoughts. But it was only for a moment that he felt downhearted.

"Boys, there is another ship around. And as far as I can tell, they have all the fuel it takes to go back to Mother Earth and to your sweethearts. Let's go get that ship!"

Helmer looked questioningly at Houghton; they had not seen a single flash of the *Tahiti* since their hurried take-off from Titan. Houghton pressed his lips together and went to the control room. Helmer followed him. The others were ordered to their stations.

"I get it," said Helmer, when he sat down at the dual controls. "You think they will want to have a close look at the damage they did. And then we'll be around."

"Yep! And we'll get 'em. I have no idea of their armament, but I know ours and I still think it will work as originally planned."

The *Dragon* bore down in streamers of flame again, looking like a large meteorite. Houghton did not care whether the enemy saw them land. He did not believe they would, since no meteorite detector had registered anything and no telescope had shown them, they were probably on the other side of Titan. Houghton had to beat them by at least one hour; he needed the time for certain preparations.

THE TWO PILOTS landed the craft without a flaw, in spite of darkness and in spite of the occasional clouds of dust that still drifted in the thin atmosphere. A tremendous crater several miles in diameter had been torn among the mountains by the exploding fuel sphere. Houghton assumed that the inner slope of the ring-wall of this newly formed meteor-crater would be fairly smooth and the ground even. At least it was to be expected from the theory of the

mechanism of meteor-crater origin. Both—the theory and Houghton—were right. The ground was near level, and the *Dragon* came to a firm rest on the shattered, broken and even pulverized rock. As soon as the rocket blasts died down, every source of artificial light, every bit of machinery running by electric power, even the air purifiers, was switched off immediately. There was nothing for enemy eyes to see and nothing for enemy detectors to detect.

The men, still wearing their heavy space-suits, put weapons in readiness inside the air lock. There was not a large variety of weapons. Space Guards had never had any encounters with organized human enemies—only with occasional single outlaws and with ferocious animals of other planets. They had heavy repeating pistols, rifles firing explosive or incendiary bullets, hand grenades, portable flame throwers and—on this special trip—even two long-barreled three-inch guns. But they had something else, known only to the commanders.

One of the powerful Diesel motors of the fuel pumps was rigged to turn the electric motor of the air purifying machinery so that it did duty as a generator. The current, augmented by all the highly efficient storage batteries aboard the *Dragon*, was transformed and finally sent through a peculiar electric device fastened to the hull of the ship. There was a small bomb hidden inside the casing of this device; if anybody tried to open it or look under the casing either directly or by means of Roentgen rays, this bomb would explode. Probably it would kill the spy, but at any event it would utterly destroy the mechanism it was guarding.

Preparations finished, Houghton ordered his crew to rest but to be ready for instantaneous action. He and Helmer went outside the ship, sat down on the ground and watched. Touching helmets—they did not dare to use their

space-suit radios—they could even converse.

There was not much time for talk. Suddenly a "shooting star" appeared in the sky. It took only minutes to ascertain that it was not a meteorite but a spaceship; naturally it had to be the *Tahiti* since there was no other vessel to be found outside the asteroid belt. A stone thrown at the hull of the *Dragon* informed the men inside the ship that the enemy was in sight. They were ready to obey any command of the two that had sprawled outside as if they were dead. Donovan, the chief engineer, took the pilot's seat, his hand hovering over a certain lever. It was the switch that activated the machinery they had assembled in such a hurry.

The majority of these precautions was unnecessary; the *Dragon* was not sighted—at least not before the *Tahiti* landed. Helmer was just in the right position to see their exhausts dying down without moving his body. He informed Houghton whose visor plates faced in the opposite direction. Houghton switched on his radio set for only a few seconds, just enough time to give a command to Donovan. Donovan, who did not exactly know the secret, but had the necessary training plus imagination to reason it out pretty closely, threw the switch with an expectant grin.

V.

SOTUKOMO, chief engineer in the *Tahiti*, noticed the results at once. The carefully balanced electric fields that tore the overcharged *mercuron* molecules apart, changing them to mercury atoms with an exhaust speed of about 65 kilometers per second, began to collapse. The needles of most of his gauges dropped to zero. Others showed overloads mounting up. Sotukomo had his hands full cutting connections before these overloads became ruinous. He knew well what caused the sudden dis-

turbance—there was only one thing that could conceivably cause such a performance of the instruments. There must be a very penetrating radiation present, a radiation that ionized the air in the spark-gaps necessary for the operation of the electric drive. The ionization made the currents flow freely and caused the machinery to run wild.

Hardly had his master listened to the report of his awed chief engineer when the rays of a powerful searchlight bathed his ship in white, cold light and the loud-speakers of the space-phone began to shout with a brisk voice.

"Space Guards calling Spaceship *Tahiti*—Space Guards calling SS *Tahiti*. Commander Houghton speaking, charging owner and commander of SS *Tahiti* with the interplanetary offense of landing on a world under jurisdiction of the Space Guards without previous announcement. Stop engines and open air lock for Space Guard inspection."

The searchlight went out. Houghton turned to Helmer with a grim smile.

"That might scare him a bit," he said.

"Well," answered Helmer, smiling too, "I know something that *does* scare him. Just try to imagine how they are working on their engines."

"It really *is* nice that the ionization field works with the Le Marr drive too," admitted Houghton. "I think one might be able to insulate that kind of drive sufficiently, but naturally they did not even think of such an emergency." While speaking he watched the craft. According to the Laws of Space they should stop their engines (that weren't running anyway) and open their main air lock within a time of twelve minutes.

Twelve minutes elapsed, but nothing happened.

At the end of the twelfth minute, the searchlight flamed again, Houghton repeated his call. This time he waited for answer, but there was none. He switched the searchlight off. There were suddenly lines of fire in the semi-dark-

ness. The sound of explosions could be heard, too.

A machine gun fired at the ship of the Space Guards—explosive bullets with every seventh a tracer bullet.

Houghton swore, inaudibly but viciously.

He ordered five men to attack the *Tahiti*. Allison was to go alone with a portable machine gun; the four others were to go in two groups, one of each group with a flame thrower, the other with rifle and hand grenades. Donovan had to stay in the air lock, manning one of the two three-inch guns. There was practically no chance that Donovan would get hurt; therefore the commanders left him in charge of the ship in general, seized two heavy rifles, and formed another attacking group. If the enemy should use more disastrous weapons, it would be good to have the men scattered as much as possible. Since the *Dragon* did not have fuel enough for the return trip anyway, she was not so very valuable. It did not matter whether those explosive bullets shattered a few windows and dented a few plates of the hull, if only the ionization field was kept up.

The two commanders leaped through the air lock after their men and made for the interior of the large crater as fast as they could. It was easy to avoid the stream of bullets from the machine gun.

Hardly had they run for a few hundred yards when a second machine gun started firing at the *Dragon*. Almost at the same instant, the first machine gun began to behave crazily. The glowing streaks of the tracer bullets flew in almost any direction. Finally the gun pointed nearly vertically into the sky but continued firing.

"Funny," murmured Helmer, who happened to see it first. Houghton could not hear him because the space-suit radios did not work in the ionization field which stretched for more than

forty miles in all directions from the *Dragon*. But then he saw it too—He also saw that a number of explosive bullets from rifles were fired. While the two spaceships were about two miles apart, the opposing forces had evidently met somewhere in the crater.

CAUTIOUSLY, Houghton opened the visor plate of his helmet for a moment, testing the air. It was thin—very thin and cold—but there were apparently no poisonous gases or vapors present. His years of Martian experience made him stand the thin air and the cold; he left the visor plate open. At least he could hear now: There were explosions of bullets everywhere. Once he heard the report of the three-inch gun and the explosion of the long shell. Every sound was oddly faint in the thin air. The crash of one—two—three—hand grenades came to him. Another report of the three-inch gun. The second machine gun stopped firing, the first one still continued, but still its bullets raced upwards in a steep angle.

Helmer had opened his visor, too, when he saw that Houghton did so. "This sounds like a three-cornered battle," he shouted. "Hope dawn comes soon." It did. Slowly they began to see a little better. There were men in light space-suits, small men, easily distinguishable from the Space Guards, none of whom measured less than six feet and all wearing the heavy Regulation III suits.

Wherever somebody from either side moved, dust, sand and gravel flew into the air from the explosions of rifle bullets. Part of the battle scene was illuminated by the fire of the flame throwers, apparently near the position of the first machine gun that had finally ceased shooting at the dawning day. Whether it was because it had gone out of order or because its supply of ammunition was exhausted nobody could tell.

Suddenly Houghton and Helmer saw

something ahead of them that looked like a paved highway at least two thousand feet long. They guessed its nature right; large basalt cliffs were ahead of them, lying horizontally either due to tectonic changes of this place that occurred since the basalt cooled or because they had been thrown over by the explosion of the fuel sphere. The two men ran along on this natural street of fallen basalt columns, sheltered from sight and from rifle fire by other columns piled higher to the left and to the right. Later they heard that their men had found similar sheltered ways and that only for this reason had they been able to approach the enemy as quickly as they had done.

When they had reached the other end of the fallen natural pillars, they saw both flame throwers in operation. The ground was still sloping down a little and they could see fairly well across a considerable portion of the crater.

"What in hell is wrong there?" thought Houghton, looking for the easiest way to approach the *Tahiti*—unseen, if possible. He could not answer his own question; the fire of the flame throwers disappeared and without this light it was still too dark to see at a distance.

Something moved ahead of them. They had their rifles ready, but soon they saw that it was one of their own men, holding the smoking nozzle of a flame thrower. Recognizing his superior officers he opened his visor too.

"Giltton is dead, sir," he reported.

"Explosive bullet?" asked Houghton.

"No, sir. Those beasts that look like large turtles with many feet. There are dozens of them to the right. Shooting doesn't help much but our flame throwers were very effective. The enemy was fighting with them when we came."

Houghton turned to Helmer, "Here's the third side in the battle."

The sentence was interrupted by the sound of rifle reports and the crash of

hand grenades. The other flame thrower was belching fire against the carapace of one of the monsters. Houghton tried to see whence the rifle shots came. Eventually he found the sharp-shooters; they were standing directly at the air lock of the *Tahiti*. Ordering the man with the flame thrower to follow them, the two commanders progressed through another basalt corridor that opened ahead of them. Then another and another.

WHEN THEY emerged from the last one, Saturn and the Sun had risen above the horizon and it was now a fairly bright morning. There lay the *Tahiti*, only about two thousand feet ahead of them. Three small figures in space-suits were standing near her air lock, firing at a couple of carapaced monsters that made for the *Tahiti*, sensing food. They did not pay any attention to the three Space Guards that were certainly plainly visible to them. The Space Guards followed the two monsters that were slowly torn to pieces by the explosive bullets of the defenders but still kept a steady pace.

When the Space Guards were fairly close to the *Tahiti*—only about a hundred yards separated them from the air lock—the three men near the door started firing at them. The animals were dying, greenish blood oozing from large wounds, the many legs kicking the air. The mechanist of the Space Guards stopped, let go of his flame thrower which was about empty and threw his last hand grenade at the defenders of the *Tahiti*. The missile exploded harmlessly about a hundred feet from the air lock; throwing needed much practice under this slight gravity.

Houghton's and Helmer's heavy service pistols spoke like one—One of the three figures swayed and fell, the others continued firing. Suddenly there was a roaring noise in Houghton's ears, for a split second he believed that he had

been hit. Then he realized that it was his space-suit radio, thundering with static. Running, leaping and firing he figured out what meaning the sudden activity of the earphones conveyed. It was easy to understand. If the radio set worked—no matter what noises it emitted—the ionization field had failed. Something had gone wrong in the *Dragon*. Therefore the *Tahiti* was maneuverable again. He hoped that the enemy would fail to notice it as quickly as he had.

He heard Helmer cursing. The German was two steps ahead of him, being much heavier than he and therefore having a better footing under the lesser gravity of Titan. Probably Helmer had realized the meaning of his own radio's activity too. There were sixty feet left—the static made him deaf—there was no time to shut it off—Did that noise mean that the engines of the *Tahiti* were building up electric fields—their electric potentials must be a source of terrible static—forty feet left. Running in a straight line at the two men who still defended the *Tahiti's* open air lock, Houghton fired at them. His explosive bullets found their target. Suddenly one of the two began to sway first, and then to spin around, his hands reaching for his head they could not find, his legs making erratic movements. He dropped just in the moment Houghton passed him. The other had turned and had run for the air lock himself. Twenty feet left for Houghton—for a fleeting instant Houghton wondered why the man had turned, knowing as he did that he faced Oriental soldiers who would never turn and run even if their survival would be much better for the country or cause they defended than their sacrifice. The outer door of the air lock was closing slowly. The soldier was inside; Helmer just landed inside with a long leap. Houghton leaped too and flew through the closing crack without an inch to spare.

He felt the door closing when he fell to the metal floor inside the lock. The ship vibrated; acceleration increased his weight. Skilled pilot as he was, he could tell by the feel that they were ascending at an angle of thirty degrees with an acceleration of one and a half gravities. Helmer threatened the last soldier, telling him just what terrible fate he had in store for him after long and careful planning if he gave an alarm of any kind. Unfortunately, Helmer was excited and made his speech in German so that the soldier did not understand a single word. But Helmer's face looked threatening enough to fully explain the meaning of the guttural noises he made.

"How do you open the inner door?" he then asked in English, suddenly realizing that he had used the wrong language.

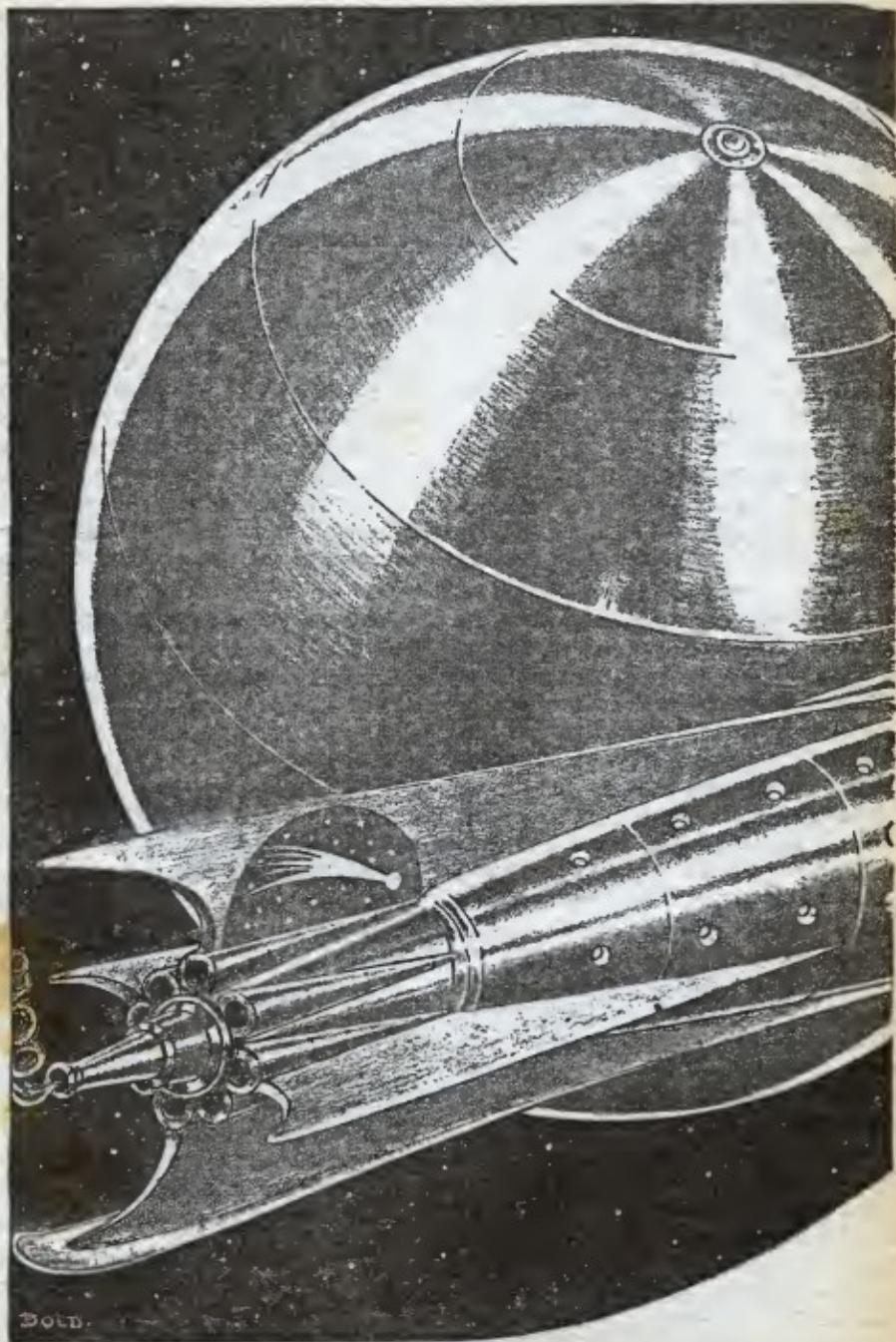
"No say," answered the soldier defiantly and Houghton was just thinking of translating the most impressive part of Helmer's speech when the door opened by itself. Evidently the pilot of the ship expected survivors in the air lock and wanted to let them in.

Houghton socked the soldier efficiently through his open visor and thus quieted him for at least a few minutes. They ran along a corridor, noting that the *Tahiti*, although originally a flying laboratory, had been turned into a luxurious space-yacht. They blundered through the next door they could find; it was the library and nobody was there to see them. They reloaded their pistols and went out on the corridor again, quite ready and very much determined to shoot on sight any living thing they would encounter, unless they opened to run into Dr. Le Marr.

There was another door, Helmer knocked it open—both had their pistols ready—

Then both forgot everything they had had in mind.

There was a large luxurious cabin. An Oriental stood facing a beautiful and



DODD.

*Gently the DRAGON nuzzled at the immense fuel-sphere, slowly,
gingerly accelerating it to speed.*

expensively dressed lady who calmly pointed a small pistol at him and spoke equally calmly, even pleasantly, in a language the two Space Guards did not understand.

Seeing the two men and recognizing the insignia on their space-suits, she rose from her seat and said, still pointing her pistol at the Oriental, "Messieurs, your prisoners!"

THE TWO SHIPS, the luxurious space-yacht *Tahiti* and the grim but now-crippled cruiser of the Space Guards, were resting side by side on the shattered rock on the floor of the gigantic crater torn into the surface of Titan by the fuel sphere. The light of the primary and of its rings illuminated the strange scenery. Mighty basalt columns were strewn over the floor of the crater. On one side a large opening yawned, the entrance to caverns opened by the explosion. There were gigantic "nests" or *druses* of crystals, broken to pieces by the unbelievable forces that had destroyed the original valleys and mountains in less than a second. Large rock crystals, weighing at least a ton, sparkled in colors ranging from blue-white and violet to a light brown. There were deep violet and bright green crystals, large lumps of amorphous matter, opaque white like freshly fallen snow.

Men in light space-suits were carrying equipment from one ship to the other, guarded against a possible attack of carapaced monsters by a Space Guard with machine rifle and flame thrower. The flag of the Space Guards—a golden comet in a blue star-studded field—was hoisted on a metal rod fastened to the pointed stabilization fin of the *Dragon* that was being abandoned. The wreck of the crippled *Dragon* was the first official Center of the Space Guards on Titan; the satellite was under Interplanetary Law.

There was steaming coffee on the

metal table that was illuminated by the light of mighty Saturn, streaming in through the large windows of the *Tahiti's* main cabin. Around the table sat three men and a woman. Two of the men were officers of the Space Guards, tall and grim-visaged, hair graying at the temples—Houghton and Helmer. An intelligent and good looking man of medium age, dressed in a gray suit, was the next—Dr. Le Marr.

Between Dr. Le Marr and Helmer, facing Houghton, sat the woman—beautiful, elegant and distinguished-looking Madame Sima.

After a few meaningless preliminary remarks Houghton opened the conversation. "Madame Sima," he said, "you are aware, of course, that I as a representative of the Space Guards, have to ask you a number of questions."

Madame Sima nodded. It did not look like the nod of a prisoner, neither dull nor defiant, but it looked like the nod of a queen, deigning to grant an audience. But she nodded smilingly; it seemed she was extremely pleased to tell the commander what she had to say.

Houghton had been ready to face—and to break down—open or hidden resistance. Encountering none, he did not quite know how to begin.

"Madame," he said finally, "I had thought to find you on the side of the enemy where you seem to belong. Just at the critical moment, however, I found you aiding the law. Your position was by no means hopeless—in fact we looked like the losers. Unless you were mistaken in your judgment of the situation, your actual attitude cannot be understood considering known factors. Therefore I'd like to hear your explanation."

Madame Sima smiled again, lighted a cigarette and looked into Houghton's eyes. "Commander," she began, perfect English with just a faint tinge of exotic accent, like the fragrance of an expensive perfume, "I had had in mind

to refuse any explanation until standing face to face with the honorable highest commanders Rawlinson and Farrington. But seeing that the Space Guards saw fit to assign two of their very best men to the rescue of Dr. Le Marr, I think that secrets would be superfluous.

"You know, of course, commander, that there is a nation on Earth that, never producing anything for civilization themselves, were the best pupils other nations ever had. They began as pupils of the great Chinese nation. Later, when they had learned the secrets of the West, they turned against their first teacher.

"The government is at peace with everybody—but you may imagine that there are many who watch the pupils so that they cannot go on new conquests and find an unprepared world. There are too many who watch and warn in time. Do not think of an organization that has airplanes and tanks and guns and searchlights. There is no organization. There are friends who are the children of people who were friends—and their fathers, grandfathers and great-grandfathers, oftentimes back to the time of Ming."

HOUGHTON had time to look at her at leisure. The description of the girl really fitted. The men had laughed a good deal about Gwendolyn Le Marr's adoring words that were believed to spring from her youthful enthusiasm—but minus a few minor exaggerations her picture was true. "You don't see her age," she had said, "only her beauty. Her dresses are the most adorable things in the world, but they befit her. She looks as if she were of royal blood, but although her skin was whiter than my father's I do not think that she is European or American. Look for the granddaughter of Emperor Ku-yang and take the youngest and most beautiful and most royal of them and you know Madame Sima who told me that

she is even a little older than thirty." Houghton, better acquainted with the races of humanity than the girl, believed he knew her parentage; there was aristocratic Chinese blood mixed with White.

Madame Sima seemed to know what he was thinking, because she said, "My mother was white. A fatherly friend of mine, when I was twenty, asked me to help him and his friends watching the pupils. I thought it more convenient to refuse, and a few years later I went to Europe and married a European diplomat. Fate willed that after a few more years he was sent to the Far East. After some time he died suddenly and in such profound secrecy that nobody learned the news. Then my fatherly friend found me ready. I was assigned to watch the man who stole the *Tahiti*. It was thrilling to attract him and keep him at bay at the same time. I just began to grow tired of this play when news of Dr. Le Marr's propulsor arrived. They pondered possibilities for a long time. My fatherly friend watched with interest and we decided to let things progress without acting. One day Oyiki was discharged from service, but large sums of money were given to him without specific instructions. He knew what he was supposed to do."

"Get the Le Marr propulsor to test it first and then occupy the Outer Planets and their moons for his nation," concluded Houghton.

"Exactly," Madame Sima agreed. "Up to now, he has done nothing of this sort, being legally not even a citizen of his country. You might assume that they considered a possible failure."

Madame Sima had finished. She looked at Houghton as if she expected him to answer. Eventually he did. "Madame Sima, I feel that you are right to refuse explanations until you stand face to face with the highest command. Now I'll question the former commander of the *Tahiti*."

"You can't, commander," said Madame Sima with a faint smile.

Houghton understood at once, and nodded. Of course, since he had failed, there was only one honorable way out left for him and he had doubtless used the hours he had been left alone to go this way.

Houghton sat down again.

"Another question. Miss Le Marr searched society files for your picture, Madame Sima, but unsuccessfully. How come?"

Now Madame Sima smiled. "Did you ever hear that some women look entirely different on photographs? I am one of those, as you may test for yourself if you want to."

"And a last question: Why did you leave Miss Le Marr on the Moon? I suppose you did not dare to land near a populated section of Earth, but why didn't you take her along with you?"

"For her own sake. We soon found out that she is very susceptible to 'space-fright' and we feared that taking her along would endanger her life. Besides, it served to make the Space Guards nervous."

"It certainly did," laughed Houghton.

At this moment someone knocked at the door. It was Donovan, reporting that all equipment that was not to remain on Titan had been transferred to the *Tahiti*. Two men were to remain in

the *Dragon*—Space Guards of Center Titan.

"How fast can we run?" asked Helmer, his question directed to Dr. Le Marr.

"We could do it in ninety days, but I believe the Earth will have a more favorable position if we loaf a bit. Let's say a hundred and ten days for the flight."

"All right." Houghton switched the loud-speakers on and gave his orders.

"Tahiti, supplementary SG cruiser for this trip, takes off at 5 p. m., terrestrial Eastern Standard Time, of the Americas. Prisoners get *xenisol*, crew stays awake. Space Guards of Center Titan report to me at once."

He switched the loud-speakers off. "One day, when we are in space, we have to think up the news releases. They'll want them via space-phone—Deimos-Moon-Earth," he said.

"One day I'll start asking questions about your propulsor," announced Helmer.

"I want to eat at the captain's table," said Madame Sima, "and I want Commander Houghton to tell me Space Guard stories. Little Sima always loved rescuers."

Houghton laughed. She suddenly sounded like a little girl. "All right," he promised, "I'll lie till the jets begin to sputter."

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FIVE YEARS!

This September issue of Nineteen Hundred and Thirty-eight closes the fifth year of the Street & Smith *Astounding*. During various periods of that five years, we've talked of progress made, and progress to be made. I think that it is time to look back over those 60 *Astoundings* that have appeared and see what progress we have made.

In October, 1933, the first Street & Smith *Astounding* appeared. It contained 144 pages, had rough edges, and was feeling its way. There were stories that verged on the straight weird, and stories of fantasy. It was making offerings then, hoping to be guided by the reader reaction as to what types, what authors, were best liked.

It had been shown within a few months. The next March, *Astounding—Astounding Stories* then—was 160 pages. It had made a definite advance. *Astounding* has never retreated. It is, today, 160 pages, pages of the best science-fiction we can find in the world today.

The edges aren't rough any more. They're trimmed. And the stories aren't rough any more. We've learned to trim them to the smoothness you want. This past month, I've been getting letter after letter saying that *Astounding's* July issue is the best yet. Last month I got letter after letter saying the June issue was the best yet—saying we couldn't surpass that, and wouldn't hold it, of course, but it was good.

We did surpass it.

Things like trimmed edges, 160 pages, are easier to measure, to lay measuring sticks and definite units beside, than better stories and better illustrations. Always, the intangible value of a story is hard to measure. Yet a magazine with the scientific background of *Astounding* inspires a natural desire for an actual, quantitative analysis of its material.

The Analytical Laboratory—the first, complete department of story analysis in science-fiction—is our answer to that. We're going to do all we can to carry out the dictum "try, and compare" with respect to our stories. That is one reason why we have surpassed each preceding issue as the new magazine came out.

We've changed the title during this last year. It's *Astounding Science-Fiction* now. This past year has brought forth such stories as *Golden Horseshoe*, *Galactic Patrol*, *The Master Shall Not Die*, *Flareback*, *Three Thousand Years!* and *The Legion of Time, Men Against the Stars* and half a dozen others you'll remember.

More important, I think, is the number of new authors it's brought. M. Schere, Kent Casey, Lester del Rey and the others. And *Astounding* has brought, for the first time with any consistency, good humor-stories such as *Anachronistic Optics*, *Hyperpelosity* and *The Dangerous Dimension*.

This past year *Astounding Science-Fiction* has advanced. It has advanced every year. But with new authors and the *Analytical Laboratory* and your co-operating letters to guide them, *Astounding* will advance more in the coming year than ever it has before!

The Editor.



X 1 - 2 - 200

by Ray Cummings

The thinking machine, of course, has the advantage over man that it will be emotionless—But—must it? Must Intellect be devoid of feeling—?

HIS name was X1-2-200. He was built in the Dyne Robot Factories; the date when his existence began was engraved on his fuse-box—Jan. 20, 2200. Old Elihu Dyne was present when the last motivating connection was made, for this was to be his personal servant—the highest type automatic machine his genius had produced.

X1 could barely remember his three months of preliminary training. It was a blur upon his brain-scroll. But he was dimly aware of the daylight hours on the big training field within the walled enclosure of the factory, where, with squads of other robots, they were taught to motivate at the spoken word—



X1 looked steadily at that new type of human for a moment. The great steel arm moved slightly, and the struggling man slumped. The robot turned and stalked from the room, down the steps—out—

walking, running, retrieving objects that the instructors threw for them.

Then came the weeks when X1—superior to any of the others—worked with his private instructor. He remembered the pale-eyed, soft-voiced young fellow very well. All day, if the weather was pleasant, they worked on the field, or indoors. And together they went out at night sometimes. X1 had not liked the night training at first. His vision-lenses did not compensate quickly or accurately enough; the darkness was a confusing emptiness; or, when the instructor made the lens-aperture adjustments, sometimes even a little light was a white glare.

But Elihu Dyne himself worked on X1 until that was made automatic. And it was gentle old man Dyne who had patiently labored with X1's final training, motivating the vocal responses until they became wholly automatic, never varying as they operated of their own control.

X1 remembered very well that warm sunny day when in the big, half-mile-long training yard he had performed alone, passing his final factory inspection. It was a very important ceremony. A group of visitors watched and listened as X1 went through his complicated tests. Then X1 had stood for the photographers, and he had accurately answered all the questions which the newscasters and the sound-machine men had flung at him.

"Why, it actually thinks," someone had said. "You've got something almost human there, Mr. Dyne."

The frail, gray-haired Elihu Dyne was beaming. "It does think," he said, "within the controlled limits of the motivation I have built into it." He reached up and patted the socket-angle of X1's broad metal shoulder from which his long jointed arm dangled. "We're going to get along fine together, aren't we, X1? You're going to serve me well?"

"Yes," X1 said.

He could feel in all the ganglions of his nerve-wires the tingling current that recorded on his brain-scroll the reaction that he was pleased and proud. The summer sunlight glinted warm on his seven-foot height of polished metal. With his left hand—his huge hook-finger sheathed, his pincer closed, his jointed fingers outstretched—he saluted the awed onlookers with the robot-gesture of Obedience. Then he turned his square alumite head so that his eye-lenses and listener-grids fronted Dyne again.

"Your orders, Master," he said.

With skilled fingers old Dyne set the intricate control buttons for the next twenty-four-hour period. X1 turned and with measured, clanking tread went into Dyne's personal laboratory to begin his duties——

A YEAR passed, and summer came again. X1 had performed well. Even the most delicate coil and tiny diaphragm-grid of his intricate mechanism was standing up perfectly under almost continuous service. There had been no replacements, for the Dyne factories used only the first-grade materials. X1's control buttons were seldom needed now. Almost all his duties were performed in this one room where old Dyne—nearly always alone—conducted his research experimental work. X1 knew every cranny of the littered laboratory. His whole life was here, its routine so engraved within him that he was automatic in the selection and the performance of his tasks. The Free-Action button had been set now for a month, untouched by Dyne so that X1 had responded to Dyne's spoken commands, and, without them, controlled himself with his own selective motivation.

He was very pleased with that. Today, at the end of his first year of service, he had heard the newscasting bulletin telling the public all about him. He stood this afternoon in a corner of

the laboratory, motionless between tasks, with his memory-scroll tingling as he recalled Dyne's words of praise.

"I'm proud of you, X1. You're giving our factory a lot of publicity. That helps the business."

And X1 had responded, "Yes, Master. Thank you." Dyne was a good Master. His voice was always gentle, clear and concise. X1 had very seldom had a wrong reaction. He was glad that other people almost never came into the laboratory. X1 indeed, from that day of his Final Test a year ago, had never seen any other human save one or two of Dyne's young men assistants.

At mid-afternoon—this day that was destined to be so momentous—with X1 silently watching from the room-corner, old Dyne puttered over his retorts and test-tubes at the laboratory table. And the audiphone buzzed.

"Shall I take it, Master?" X1 said.

"No. I will."

There was only audible connection. X1's tiny audion tubes magnified the sound of the incoming voice: "Is this Elihu Dyne?"

It was a queer voice, of a different timbre from anything X1 had ever heard before. He wondered if it were human. The vibrations of it were of a far higher frequency than Dyne's voice, and its precise overtones made it clear, bell-like. X1 felt within him a strange responsive reaction that he could not interpret. It was confusing. It made him swing out one of his huge padded feet as though he were about to start forward. But he knew that was wrong, and he checked himself.

Old man Dyne was saying, "Yes, I am Elihu Dyne."

"Oh, well this—this is Vera." The incoming voice broke, then steadied itself. "You remember me, father? I'm eighteen now."

X1 COULD SEE that the blood had left old Dyne's face and that his hands

holding the audiphone were trembling. And all he seemed able to do was to gasp, "You're Vera?"

The strange incoming voice gave a little quavering laugh. "Yes of course, father. Do you want visible connection? But you wouldn't know me if you did see me, would you?"

"What do you want?" Dyne asked unsteadily.

"I'm coming out to see you. Arturo is in trouble." The voice labeled Vera seemed breathless with haste to get the words out. "Don't tell me I can't come, father. Arturo—he's in desperate trouble. We—we want you to help. I'm coming alone. Arturo, he can't come. And oh, I do want to see you, father dear. Now that mother is dead—"

"When are you coming?" Dyne asked. X1 had never heard such a quiver in the Master's voice before.

"I'm coming right now. I have my own helicopter. By sundown—"

"All right," Dyne said. "I—I guess I'll be glad to see you, Vera."

The connection broke. Old Dyne dropped his head into his hands and for a long time sat silent and motionless. X1 stood confused. He was aware that something was wrong. And the combination of circumstances seemed to demand action. But which action he should choose of the myriad he had learned was not clear to him.

Then at last X1 went slowly forward. The blue tubelight of the laboratory gleamed on his polished metal body-plates as he stood staring down at Dyne, with the eye-lights of his big square face softly gleaming.

"Master?" he said.

Dyne looked up. "Oh, you, X1? What do you want?"

"Tell me what to do," X1 said. "There is need for something."

He could see that the old man was stirred by emotion. And Dyne suddenly exclaimed,

"Need to do something? My Heav-

ens, yes." The Master was excited. His eyes were moist as though with great sadness; but now he was excitedly smiling. "My daughter is coming X1. My little girl, all grown up. And I haven't seen her since she was a baby."

"Girl?" X1 said. "Daughter? What is the meaning?"

Dyne stared.

"Tell me," X1 said. "These new things. Master, you have always said you wanted all knowledge trained into me."

Dyne had jumped to his feet. "Of course, X1. But we've got so much to do now. The house has got to be ready for Vera by sundown. My daughter coming! My little girl. Why—I had no idea I wanted to see her so much. I've been so stubborn. And there is my son—Arturo. Why, he must be seventeen now."

"You have a son?" X1 said. "That was never recorded in me. What is a daughter? This one is labeled Vera? Is it human?"

"Of course," Dyne laughed. "Follow me, X1. You will help me at the house."

The excited Master hurried from the laboratory and X1 obediently clanked after him. It was raining outdoors and they had to cross a corner of the yard to get to what X1 knew was the house. The rain, wet and cool on X1's warm, dry body-plates, was frightening. The feel of it sent a quiver of instinctive command that he go back to the laboratory, for his earliest training had taught him that no robot ever must get wet and chance the deadly, corroding rust. But the Master had commanded to follow. It was confusing.

AS THEY WALKED, X1 was saying, "A daughter is human. Like a son, perhaps, who is very small and young? Tell me, Master."

"Well, not just that, X1. A daughter is a different kind of human from

a son. She is a woman— Oh, some other time I'll tell you."

They were in the little house now, and suddenly Dyne added, "I've been all wrong, X1. I thought I hated all women. Vera's mother made me feel that way. There isn't a woman allowed on my grounds here—never has been." He reached up and patted X1's shoulder. "Of course, there's a whole new set of factors you've got to learn, X1."

"You will train me, Master? This house. I have never been here before. I cannot use Free-Action in it. If you will set the controls—"

"Oh, yes, you can. Take it slowly, X1. Think what you're doing with each movement."

"I am trying to think, Master."

"You'll be all right in an hour. I want Vera to see you—to see the finest product of her father's work all these years."

The little house where Dyne lived alone with only one man-servant, who today was away, was at first terrifying to X1. But he moved slowly so that he might not collide with anything. His confidence grew as the new tasks were successfully accomplished. It reminded him of his training days. There was no bedroom furnished for this daughter. But there was furniture stored in the bottom of the house, and X1 carried it up and helped Dyne erect it.

Then darkness came outside. Today was Sunday. The factories were empty. There was no robot save X1 in action. Through the near-by factory windows across the rainy yard-corner he could see the rows of inert forms, with fuses disconnected. Just machines. Nothing to compare with X1—just a factory product of things that could do a few simple tasks. They were built to make money and were shipped out to fill orders.

The human watchman made his rounds outside in the rain. Except for that there was no movement. Then

from upstairs in the little house where X1 stood motionless with no task to make him move, he saw a helicopter come down through the wet gloom and land on the glistening pavement of the yard. Old Dyne and the watchman were there to greet the human figure that came from the little aircraft. It was a small, strangely dressed figure. It threw its arms around Dyne and they pressed their faces together.

X1, with his listeners raised to their fullest power, still could only hear fragments of the conversation downstairs between Dyne and this daughter. It was full of new things, but as they etched into X1's memory-scroll he sorted them out. The daughter's mother had mistreated Dyne so that he was filled with hate. That was many years ago. A hate for all that kind of human called woman. And he had sworn that he would never see the wife, nor the son, Arturo, nor the daughter, Vera. But the wife was dead now. The son was in trouble; the Law had said he had done something very wrong and had locked him up with his Free-Action taken from him. And the daughter had come to Dyne for help.

It was all confusing to the listening X1. It frightened him to realize that there was so much of human knowledge—so many things of human life—that had never been taught him. And suddenly he was aware that he wanted to know these things. It was as though within him a million tiny electronic cells were empty, and were tingling to be filled with knowledge that belonged in them. It was something maybe like what a human felt that he called hunger. X1 had never been able to understand what that was before, but he seemed to understand it now—

"AND THIS is X1," Dyne was saying as he and the daughter-girl presently entered the room. "This is the highest-type machine I have ever built,

Vera dear. I'm really proud of it. I want you to be proud of it too."

The girl-Vera stared across the tubelit room and up at X1's impassive metal face as he stood motionless, backed into the corner. He could see that she looked awed, even a little frightened.

"Oh," she murmured. "It's so big. I've heard the newscasters—but I didn't realize——"

"The Gesture, X1," Dyne said.

X1's huge, square hand—the steel hook sheathed, the pincers closed, the jointed fingers outstretched—went up to his head with the robot-gesture of Obedience.

"This is your Mistress," Dyne said. "The same as Master—to give orders."

"Yes, Master. I understand."

His hollow-toned, electronic voice had frightened her. He was sorry about that. He was aware too, that it was not his normal-toned voice—as though the nerve-current were deranged a little, bringing a quiver. And the sense of his knowledge cells that were empty and hungry to be filled was stronger than ever as he stared. The girl was a strange-shaped human, strangely dressed. Her golden-colored hair framed her face. X1 stared at her face. His confusion was not exactly terrifying now. It was unpleasantness and pleasantness mixed. Puzzling.

Vera and her father had turned away. They spoke of Arturo who was in trouble.

"Why, I'll get him free," Dyne said. "If it takes every cent I've got, I'll get my son free. He can't be guilty of a thing like that."

"Of course he isn't, Dad. I—I'm not really worried over him, now that I've got you."

From the corner, the ignored X1 stood gazing at the face of the girl, at the blue tubelights glinting in the gold-colored hair. He was trying to think, trying very hard to get to that thing called Reason, which Dyne had taught

him was the highest type of thinking. And he decided that he must be frightened, because he wasn't standing rigid, his whole body was trembling.

The second helicopter arrived in mid-evening. X1 saw the lone visitor descend from it—a tall heavy-set man in a dark, flowing rain-cape and a black triangle cap. He presented his papers of identity to the armed watchman, and was brought into the house. X1 caught just a quick nearer glimpse of him as he passed under the hall tubelight. He was a man of about thirty years, with black hair, white at the sides. It was what humans called a handsome face; a face of power with a high-bridged nose and dark eyes deep-set under black, bushy brows. The mouth was cruel. To X1 came the flash of a thought that he would not like to have this man for Master.

From the top of the stairs X1 stood in the shadows and tried to listen to what the three downstairs were saying. But the door was closed and the rainy night now was stormy with a wind that whined and sucked and howled around the little metal house. He could only hear fragments. But he learned that the visitor was a friend of the girl-woman Vera. A man named Jac Traub. He had followed Vera here because he wanted to meet her father. This Jac Traub was, X1 thought, an important man in the big distant city of Great-New York. In the morning, he told Dyne, he would have something very important to discuss.

THE MASTER politely agreed. But it was only an assumed politeness. X1 was sensitive to even the least quivering overtone in the Master's voice. His oscillograph analyzer was far more accurate than human ears. And he could hear now that Dyne—despite his politeness—disliked the look of this visitor. And the girl-woman Vera was secretly apprehensive. X1 could hear that the

clear bell-like timbre of her voice was all turgid and blurred by quavering overtones. The dissonance of it seemed to strike an answering quiver within X1 so that he stood stiff in the shadows at the top of the stairs with hundreds of little relays inside of him seeming to tremble. The tiny beams from his twin lenses flashed in the darkness. Though he was hardly aware of it, the hand dangling at his side had clenched into a great mailed fist with its pincer-claw twitching.

When the two men and the girl-woman at last came upstairs to go to their rooms, X1 moved noiselessly back into a corner of the hall and turned his eye-beams very low so that he might not be noticed. He saw now that the visitor was a burly man of about six feet. He had decorations across his chest to show that he was important.

At the door of the bedroom which Dyne and X1 had furnished for Vera, the visitor bade the girl good-night.

"Good-night," she said. Her red lips were smiling, but there was a quiver to them. Her eyes had a cloudy look of fear. The overtones in her voice quavered again.

The door closed upon her. To X1—as she disappeared—it was as though a warming radiance had flickered and died so that a chill vibrated along his nerve-wires. That was queer. Was he learning a new type of thinking? He stood inert, but the strangeness within him seemed pulsing with a myriad vibrations that he had never felt before. Perhaps he was learning the thing called Reason? Whatever it was, he was aware that he was stirred now by reactions he had never had before. As though during all his existence he had been in something like what the humans called Sleep; and now he was Awakening.

"I think you'll be comfortable here, Mr. Traub," the Master was saying. "But it isn't much of a room. I fur-

nished the other one for my daughter, just this afternoon. I live alone here, you know." The Master and the visitor were at the door of another bedroom nearby in the square upper hallway.

"Oh yes, of course. Thank you," Traub said. The timbre of his heavy voice struck into X1 with an unpleasant vibratory response. That, too, was something new, for until this momentous day no voice save the Master's had caused X1 any inner responsive stir since his training period with the instructors.

The two men parted. The door closed upon Traub. Then in the dim hallway as the Master went toward his own bedroom, he chanced to notice X1.

"Oh, there you are, X1," he said. "I had forgotten you."

"Yes," X1 responded. "What are the orders, Master?"

Would Dyne notice anything queer about his voice?"

"No orders, X1. You can stand there where you are. In the morning there will be things to do."

"Yes, Master."

Dyne was obviously worried to-night. His gentle old face was haggard—so that he looked almost as though he were deranged by illness. But he smiled up into X1's impassive face as it towered over him. Then he reached with his familiar gesture of pride and patted X1's shoulder. He had done it a thousand times before. But this time, strangely, within X1 there was an answering response—a queer tingling along all his nerve-wires, a stirring flow of something unnamable throughout all of him, even into his brain-scroll. Was he feeling what the humans called Affection? It seemed to call for action; it seemed to demand an action-response—something that would express the warm glow that was surging over him. Then the action-response came. X1's huge jointed arm noiselessly swung,

went around the Master and for a second gently pressed him against the shining mailed body.

And X1's voice suddenly said, "Good-night, Master."

FOR THAT SECOND Dyne stared. Then as the arm released him he gasped and jumped backward.

"Good God, X1, why did you do that?" he murmured.

"Was it wrong, Master? You never told me."

"Wrong? No—good God—" For just a moment Dyne stood staring, amazed, confused. "Wrong?" he repeated. "Lord, I don't know." The blood had left his face so that in the dim hall tubelight he was almost white. Then he recovered himself. "In the morning," he said, "I'll talk to you, X1. Just the two of us, alone." His voice was very queer.

"Yes, Master," X1 said.

Then impulsively Dyne reached up toward the fuse-box in X1's chest. "For tonight," he said, "I—I think I'll disconnect you, X1."

It brought a terror that made X1 take a backward step.

"Master, I have had Free-Action so long. I am all right. I know the house now."

Through another silence Dyne stared. "Very well," he agreed at last. "Stand there in the corner, X1. There is nothing to do."

He turned away. From his bedroom door he added, "Turn your actuating current to the lowest intensity, X1. There will be no orders during the night. I don't want to wear you out with unnecessary current."

"Yes, Master."

As the door closed upon Dyne, X1's hand went to the current-switch at his metal belt. But his fingers twitched with confusion. All his months of training were forcing an action-response to Dyne's command. The law of Obedi-

ence had been built and trained into him, and it pushed at his fingers. But there was something else now that fought with it. Something new. Was it that new type of thinking called Reason?

For that confused second X1 stood shaking, deranged. Then he steadied and his metal finger pushed the little switch, not to a lower intensity but to a higher. Within him the current leaped and crackled, then settled to a steady hum that made him alert, tense, eager, with every faculty sharpened to its highest pitch.

In the dim hallway, motionless as a great metal statue, the giant robot stood backed into a black recess. The steady little glowing beams of the eye-lenses, to one unfamiliar with the house, could have been glows of the hall tubelights reflected on metal—

For an hour there was only silence, mingling with the outside rattle of the rain of the metal roof and the moaning whine of the wind around the metal eaves. Then the bedroom door of the visitor, Traub, slowly opened with a widening slit of tubelight that brightened the hall. Very quietly Traub came out. He was still fully dressed save that he had removed his coat. The light gleamed on his ruffled white shirt, on his white ruffled neckpiece that was edged with black around his thick throat.

In the dark recess the watching X1 stirred a little. But Traub did not notice. Silently he crossed the hall and turned the lever of the door to the girl-woman's bedroom. It was locked. He knocked softly. Then a little louder.

From within came Vera's voice: "What is it?"

"It's I—Jac. Open the door, Vera." At her protest, he exclaimed, "Don't be a fool—I only want to talk to you. I told you we must talk alone—reach a decision about us, if you want to save Arturo. Don't be an idiot, Vera. I'm not going to hurt you."

THERE WAS a moment of silence. Then the door swung open. From across the dark hall X1 stared at the girl-woman Vera; at her strange long, lacy-white garment; at her long gold-colored hair that hung down like two braided ropes over her shoulders. And he stared at her face, framed by the hair. It was a white face now, with red lips that trembled and blue eyes that were wide with fear.

"Come in, Jac," she said, "if you—if you insist."

He went in. She shoved the door wide. He shrugged and took the chair she offered him. His back was partly to the open door, so that as she sat facing him X1 could see her plainly with the bedroom light bathing her.

They talked in low tones. But the quivering X1, alert with full-current surging within him, heard every word—the swift crisp words of the man, the halting, terrified words of the girl-woman.

"You know I love you, Vera."

"Yes—I know it, Jac."

"Well, I've gotten tired of telling you so, and having you refuse me. I guess you know that too, don't you?"

"Yes," she murmured. "I thought—thought last week when I asked you to let me alone—"

"That I'd do it? Because you say you don't love me—"

"I don't love you, Jac."

X1 could see that she was trying to conquer her terror. She reached and put a hand on the man's arm. "You've always forced yourself on me," she said. "I tried to be friendly. I'm still trying."

He looked at her levelly, intently for a long moment, then shrugged with a gesture of annoyance. A wry grin crossed his face of an instant. "'Friendly'. That's a damning sort of thing to say to a man who loves you, Vera. If you'd say 'I hate you. Get out!' that would make it possible to do something. But—'friendly'—!"

"Vera, what I set out to do—I do. That is the only way I know. I love you, I need you, I want you to marry me. You must marry me. I'll teach you to love me quickly enough afterward."

XI could not understand the queer overtones his oscillograph patterned. Traub's voice was troubled, mixed. There was that underlying heaviness and an overtone that seemed intentness. XI shifted slightly, silently.

"Please," the girl's voice murmured, "we've said all this before. You had no right to follow me here—"

for the Argentine Photocell Corporation in his charge did not arrive. He signed for it and the heavy oil protective tanks to carry it. Only the oil protective tanks arrived. No caesium. Nearly fifty thousand dollars gone—

"But if I were to die tonight, and some lawyers poked around in my lab notes, as they would, they'd find that I'd been studying the problem of making caesium atoms for the photocell people. That's one atom we haven't successfully tailored. All our artificial products are radioactive isotopes that have short half-lives or are so active the cells made from

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"Well," Traub sighed, "what I say now will be something new. I'm one of the most advanced atomic designers in the country—the Traub Atomic Supplies Co. one of the biggest in the world. Yes, you know that. And you know I do a lot of research in my own very private lab. Arturo is in jail for larceny. Five hundred pounds of metallic caesium

them aren't sensitive.

"I didn't succeed—but I found that by bombarding barium under the proper conditions I got a new and remarkable isotope. One that has a half-life of about ten minutes, but by a trigger-action, that disintegration does not begin for almost five hours. Then it turns to xenon, and escapes as a rare gas, indetectable. Cu-

riously, unlike most radioactives, the energy released is minute. Just a slight warming effect.

"In the more than fifty hours Arturo took getting that isotope to the Argentine, passing customs and delivering it—it was xenon. Gone.

"If you'd marry me, Vera, I'd be glad to find that the company had made an error, given Arturo the wrong lot of caesium, and explain that mystery otherwise explained only by—theft." The big man moved toward her, a queer mixture of tense and genuine eagerness and a ruling, deliberate determination.

THE GIRL had given a little cry, like a child in distress, or a little animal that had been hurt. The man had reached and put his big hand on her pink-white shoulder.

"Jac—" she protested.

"It will be the end of Arturo." The man shrugged.

"Jac please, you're hurting me—let me go—give me time to think—".

X1 saw that the man had his big arms now around the slender little body of the girl and his face pressed down against her neck.

"Jac—" Her protest was a faint scream of terror, smothered by his heavy hand as it clapped over her mouth. He was panting; the stiff determination dropped away.

"Stop that, you little fool. I'll make you love me—now—"

Like a little terrified animal she was struggling in his arms—

Across the dim hall outside the bedroom door there was a black gaunt moving shadow as X1 padded forward. Within him was a tumult, a wild derangement of all his body, for now he knew that he was about to break the Primary Law that was built into every tiniest spun-metal fibre of his being. The Law that never must he harm a human—

"Jac! Let me go—help! Oh—"

The girl's half-smothered scream seemed to X1 an appeal, directed only at him. And it was more than an appeal. It was a command! It made all his confusion drop away. He was breaking no Law. This was a command from his Mistress. The tumult within him died; and in that second as he stooped and padded through the bedroom doorway, he felt only a cool, calm triumph.

The man was pressing his face against her neck. He did not see the great jointed metal arm as it swung down. But he gasped when the metal fingers gripped him. He screamed with terror as he was plucked from the girl-woman and swung into the air, and then like a child, was held struggling against X1's body-plates.

The girl, too, had screamed. She had drawn back with terror into her big reclining chair. Breathless for that instant, she stared up at X1. And he stared down at her—stared at her gold-colored hair, at the strange outlines of this new type human called Woman, which never until today had he seen.

And in that momentous instant as he stared, X1 knew he had wholly passed beyond routine thinking, had emerged from metal-shrouded darkness into the light of the thing called Reason. It was a glaring light of horror for it revealed something that Dyne had not built into him—the mystery of human life at last to be understood by a Thing that was only a Machine.

The image of the room blurred and whirled within X1's lens-eyes. His listener-grids roared. The wild noises within him were like a tumbling torrent of water hissing against hot wires and lashed by a roaring surge of wind. Everything was blurred, distorted, unfocused so that it was a chaos. He only knew that he was holding a struggling, screaming human enemy in his arms. And that never again must he look upon this human that was called woman.

As he turned and stalked into the hall

with the screaming Traub held under his arm, he was aware of Dyne standing in a bedroom door—Dyne, who gasped, "Good God, X1! Stop! Stand still! Let that man loose!"

THE MASTER'S last command. But X1's metal arm only squeezed the screaming Traub harder so that the bones cracked and the screams stopped and the body went limp as X1 stumbled with it down the stairs.

"X1! Good God! Stand still! Let that man loose!"

The Master's terrified voice was dimmed by distance. In the lower foyer X1 stood for a second, confused. His left arm held the inert Traub. His right hand swept to find the lever of the little door that led outside.

"Vera—Vera darling, you're not hurt?" That was the Master's voice, upstairs.

"No—no, father! I'm all right—it didn't hurt me." That was the throbbing voice of the woman. The last time he would ever hear that queerly different voice—

The little door crashed outward as X1 hurled his eight hundred pounds against it, striking it with his hunched metal shoulder. With Traub held close to him, he trod out into the rain. He guessed that Traub was dead now. That was all right. He hugged the body

closer against him.

The wind roared as he ran. The rain was cold on his body-plates. He would rust. Why, what an idiotic thought! What difference? Of course the wreckage of him would rust—

The long training field was black and lashed by wind and rain. X1's huge, jointed legs were going like pistons of a racing engine now. He must run as fast as he could. There must be no error—

His jumbled thoughts raced with his legs. No robot had ever run with such a speed as this. The girl-woman would remember that X1 had been the finest of all robots. He was glad of that. He hoped she would always remember it.

The wind whistling past his head seemed to tear away his thoughts. The pelting rain sizzled now on his hot body-plates. He saw the great wall quite clearly as it loomed through the murk at the end of the field. He aimed to strike the wall squarely, and he lowered his head for the impact. Surely he was going fast enough so that there would be nothing left of the wreckage that could ever be rebuilt.

The crash was horrible. There was bursting light, then blackness. And as X1 went Away forever, there was within him just the fleeting vision of that thing called girl-woman—a vision mingled with crashing stone and—despair.

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tells of a weak little man that Fate cursed with an accident—that gave him a mighty power! His friendly glance cured any ill—his angry gaze was Death. By accident a doctor had given him the legendary Evil Eye!

DOUGHFACE JACK" unwedged himself from the rods with a startled face. He hadn't looked for the fast freight to stop in a podunk like this and the thought of bulls had



THE TRAMP

The first part of a great three-part serial.

no more than flashed through his mind than he saw some legs coming and stopping at intervals along the cars. From the stick he knew it was an irate brakie, already twice dodged en route.

Anxiously, Doughface sought to scramble out from under and so make the other side of the train. But the engineer backed a few feet with a jolt and, not knowing when it would happen again, Doughface took his chance.

He rocketed like a rabbit to the cinders and got one awe-inspiring glimpse of the six-foot brakie. He started to run, but in the other direction came somebody with a sheriff's paunch.

There was only one thing for it. The hounds had sighted the hare and Doughface couldn't trust his short legs on the

level. He grabbed the handholds and started up the car.

"Come back here!" bellowed the brakie.

"Stop!" roared the sheriff.

Doughface scrambled for altitude as heavy boots ground cinders just under him. He was panting as he made the top of the car. He glanced back to see that the brakie was coming up the same way and the sheriff had taken the other ladder. The sheriff had a gun in his hand.

Doughface took a sweeping look at the town he had uncovered. An old gent waited at the crossing in a Model T Ford. A sign said "Centerville—Population 2,000." It was better than nothing. Doughface leaped for the other



side and started down.

He would have been safe enough if his loose shoe-sole had not jammed in the first rung. But jam it did and on that fact was to hang a national event.

He was still in sight on top and he yanked at the caught shoe. He heard a grunt and looked wildly about to see that the sheriff had made it.

"Stop!" bawled the sheriff.

Doughface almost had his shoe free. He gave one last yank. To the sheriff it appeared that the quarry was about to flee. He fired an intimidating shot—but the effect was more brutal. The bullet took Doughface in the shoulder. It slammed him out into space. His shoe held for an instant, long enough to turn him upside down.

He went through space like a bomb. He saw the switch he would hit and tried to fend for his head.

And then the lights went out.

Simultaneously sheriff and brakie appeared at the top to stare down.

The sight below was not pleasant and the sheriff gulped, "I—I didn't mean to hit him."

"Hell, he had it coming," said the brakie. "I got my orders. He was probably one of that gang of sneak thieves."

"Yes," said the sheriff doubtfully, "but—but maybe he wasn't, too."

THE OLD MAN in the car had stopped his shaking machine. He reached hastily into the back seat and brought out a black bag. Then, white hair streaming out from under his black slouch hat, he ran swiftly to the tramp. He gave one glance at the two on top of the car and the sheriff became red of face and nervously started to climb down.

The old man pulled Doughface away from the train and lifted his head for an inspection of the skull. The mass was as soft as a swamp.

The sheriff got down in confusion.

"Hell, doc, I didn't mean to hit him. I was just—"

"First time you ever hit anything in your life," said Dr. Pellman. "Take his feet and put him in my car, Joe."

The sheriff was like a schoolboy caught with an ink bottle and a girl's braid. He gingerly picked up the tramp's feet and together he and Dr. Pellman succeeded in placing the man in the Model T.

"Get in and hold him from bumping," ordered Pellman.

Joe Bankhead cared more about the doctor's good will than he did about the bloody mess. He obeyed.

Pellman started the Model T and swung it around. He pulled the hand throttle all the way down and the rickety old car went galloping through Centerville to pull to a shivering halt before the doctor's office. The store loafers got up and peered interestedly.

"Been an accident?" they asked.

Joe turned red when he caught the doctor's eye and then got very busy unloading the tramp. Together they packed him in and laid him on the doctor's chipped enamel operating table.

Miss Finch, the nurse, looked wonderingly at Pellman. "But he hasn't got any skull left, doctor."

Pellman was already shedding his coat and rolling up his sleeves. He jerked his shaggy white head toward the door. "Get out, Joe. I won't have any time to hold your hand."

Joe shuffled out and closed the door behind him. Inside he heard Pellman saying, "Sterilize that silver ice container Doris gave me for Christmas. I knew I could find some use for it."

Puzzled and downtrodden, Joe went back to the crowd on the walk.

"What happened?" they demanded.

Joe looked more uncomfortable than ever. "Aw, I couldn't help it. I got a wire to watch out for a gang that escaped from Cincinnati on a freight and I thought maybe this guy was one of

'em. But he was all alone and I guess he wasn't. I didn't mean to hit him." He was almost angry now. "He's just a damned tramp, anyhow!"

"You know the doc," said Durance, the storekeeper, wiping his hands on his apron. "Tramp or sick dog, he takes them all in. I tell him it don't pay. I've carried his accounts——"

"You wouldn't be here if it wasn't for the doc!" challenged Joe, pulling harshly at his gray mustache.

"Tha's so," said Blinks, the town drunk. "Ol' Doc Pellman'd own this town if savin' lives meant somethin'."

"All I said," defended the storekeeper, "was that he was too soft-hearted about his bills. I don't say he ain't a good doctor——"

"An' you better not say in in this town!" growled Joe, anxious to turn attention away from himself. "There's them that claim he's had fifty-even offers to go to New York and be a brain surgeon. But he thinks too much of us, that's what. If he owed two hundred dollars to every store in town, it's still not enough to pay him back for what he's done."

"Think he can do anything for that tramp?" queried another loafer. "Fellah was pretty nigh dead from what I seen. Head all bashed in."

"Doc Pellman can do anything he sets his mind to," stated Joe.

THEY TUNED their ears to the inside of the office and stood around almost in silence. They were awed by the thought that Doc Pellman might yank this tramp back from death, even though they had witnessed other things they thought miracles. Two or three times Pellman himself had gotten ill and that was the closest to panic that Centerville had ever come. They could not conceive a time when Doc Pellman wouldn't be walking down the street in his black coat and slouch hat handing out cheery hellos and free medical ad-

vice in every block.

Almost an hour later, Pellman came out. He was rolling down his sleeves as he looked at Joe.

"Will he live?" said Joe.

Pellman's big face relaxed into a smile. "If I could tell things like that, Joe, you could stop calling me 'Doc' and start calling me God. How do I know if he'll live? That's up to Him."

"What'd y'do?" said Joe interestingly.

The doc's blue eyes twinkled. "Took off the top of his skull. There wasn't much left of it."

"Huh?" said Joe. "But—but what's he goin' to do for the top of his head?"

"I made a silver cap for him," said Pellman. "Out of that ice dish Miss Doris gave me for Christmas. Knew it'd come in handy some time."

"Aw," said Joe, "you're foolin'. How could a man wear an ice dish for a skull?"

"Same shape and size," said Pellman. "If he's alive day after tomorrow he'll be as good as ever. Had to sew the two halves of his brain together, but that hadn't ought to upset him. C'mon, Joe, I think you owe me a drink."

II.

DOUGHFACE woke up.

By some process of reasoning he could not define, he knew he had been in this cot for a week or more, but beyond that he could not go. Vaguely, he remembered climbing up the side of a freight with a sheriff and brakie on his heels, but all was blank thereafter.

He moved his head a little and saw that he was in a small ward. It was not a regular hospital the way he had known them. It was apparently the back of a building and there were only three cots there. On the right hand cot lay a Negro, dull-eyed and staring at the ceiling. On the left side was a young

girl, face hidden by bandages and arm in a cast.

Doughface Jack lifted himself up on his elbow. The springs creaked loudly and that must have been what Miss Finch heard. She came in from the office beyond and saw that it was the tramp.

Doughface blinked confusedly. This girl wasn't bad looking—blonde and slight—but she had a mole on her chin. Doughface thought it didn't look good there.

"Hello," she said cheerfully. "How do you feel?"

Doughface looked cautiously around him. This wasn't a jail hospital and he took courage. "Aw, I guess I'm O. K., sister."

"For a man that's been through what happened to you, I'd say you looked marvelous," smiled Miss Finch. That was not exactly true. Doughface had always been fat and his complexion had never been anything but pasty white. The bluish growth of beard did not help.

"What's the idea?" said Doughface, glancing around again.

"You mean where you are?" said Miss Finch. "Dr. Pellman saw you get hurt and brought you here. He operated."

"Gee," said Doughface, alarmed, "I ain't got no lucre. Them things cost the bucks!"

"Never mind," sighed Miss Finch. "The doctor hasn't collected a bill for years and he doesn't even try anymore. You can thank him for your life."

"Huh," said Doughface. "He must be a right guy."

"He's a wonderful man, if that's what you mean," said Miss Finch.

"Y'mean I'd be dead if it wasn't for him, huh?"

"That's it."

"Gee. . . . And he don't want no lucre for it?"

"No," replied Miss Finch. "Now

you be quiet and I'll go get you something to eat."

"Eat?"

"Yes. Anything you want in particular?"

Doughface shut his eyes and then gathered courage to take the plunge. "How about chicken and ice cream?"

"All right," said Miss Finch.

Doughface blinked. He suspected this wasn't Earth after all. If it wasn't for that mole this girl would look just like — Huh! He gaped at her in astonishment.

"What's the matter?" said Miss Finch.

"That—uh— Thought y'had a mole on yer chin, but it ain't there."

Her hand flew to the spot. She stepped to a mirror at the head of the bed and stared at herself. "Why—why that's so. It's gone!"

Through it all the Negro on one side had not moved and neither had the girl practically hidden in bandages.

Doughface did not long concentrate on the vanishing mole. "What burg is this?"

"Centerville," said Miss Finch in a preoccupied fashion, hand to chin.

"Then this is all the hospital there is, huh?"

"Yes."

"What's the matter with these ginks?" said Doughface, nodding his head to right and left.

"That's Tom Johnson," said Miss Finch softly. "He's dying of cancer and the doctor is going to operate later in the day. And this is Jenny Stevens. She was in an accident last night—poor thing. You had better be very quiet. They're very sick."

"Jake with me," said Doughface. "You mean it about that chicken and ice cream?"

Miss Finch smiled and went out.

DOUGHFACE turned over and regarded the Negro for some time. The

fellow was barely conscious and at long last he turned his head.

"How ya feel, pal?" said Doughface.

The Negro's lips moved but no sound came forth.

"Hard lines," said Doughface sympathetically.

The Negro moved his lips again and this time he spoke. "Haht's 'most gone. But ah hopes Doc Pellman gwine fix it. Ah knowed ah wasn't none too good, but—"

"He saved my life," said Doughface. "I guess he's a right guy."

"Sho is," said the Negro, strongly. "He brung mah fo' chilluns inter de worl'. Ain' nobody hereabouts that'll say nuffin' agin Doc Pellman."

He stirred restlessly and looked long at Doughface. Slowly he raised himself up on an elbow and further regarded the tramp.

Unexpectedly Tom Johnson said, "You got a cigarette, cap'n?"

"Me? Naw. They was some snipes in me clothes but I don't see nothin' around now."

Johnson raised himself higher and glanced around the room. An ash tray was under the window and he could see the butts in it. He swung down his feet and stretched. He shuffled across the floor and fished out a butt. He found some matches and brought the tray back to Doughface.

Again Johnson stretched and then took a luxurious puff. "Ain' ernough air in yere," he said, crossing to the window and throwing it open. He stood in the chill blast, again stretching.

"Mah goodness but ah feels good," said Johnson.

Doughface was disappointed a little, but grinning just the same. "Yeah, I put on an act like that plenty of times. What'd you want, some free meals?"

"Ac'?" blinked Johnson. "Say, Doc Pellman was wrong. He say I gwine die maybe. But ah ain' gwine die. I

feels like ah could lif' dis buildin' sky-high."

Doughface grinned knowingly. The girl in the other cot stirred a bit and doughface turned to grin at her. "Whatcha know about that, sister? Smoke here pullin' a fake to squeeze a free handout from a right guy like this Pellman."

The girl turned her head painfully to look at Doughface. Her voice was very faint. "What?"

"I said Smoke was tryin' to gyp the old man. But what the deuce. I done it myself lots of times. What was you doin'? Neckin' party or one arm drivin' or somethin'?"

The girl stirred. "Driving?" Until that moment she had not realized where she was. She started to put her arm down and found that it was in a cast. The weight of bandages on her face were suddenly smothering to her and she pried them away from her mouth and nose.

"How long have I been here?" she queried.

"The nurse said since last night," said Doughface. "She claimed you was on a party—"

The girl sat up straight. "I was not! The other man was at fault. He was on the wrong side of the road! Was Bob hurt?"

"Who's Bob?" said Doughface.

The girl looked wildly around her to make sure Bob wasn't there.

Miss Finch came in at that moment with a tray for Doughface, chicken, ice cream and all. She saw Johnson standing by the window in his nightshirt and gave a gasp of horror.

"Get in bed!" cried Miss Finch. "You're due to be operated on in an hour!" She turned and saw the girl sitting up. "For Heaven's sake! Lie down! You've got a compound fracture and your face—Jenny Stevens! What have been doing to your bandages?"

The girl pulled at the gauze so that she could see better. Miss Finch stopped, frozen.

THE NURSE managed to recover her wits. She advanced on Jenny and moved her gauze again.

"But it can't be!" she insisted half aloud. "That eye was out. There was an inch splinter of glass in it. But—but maybe it was the other eye." She lifted the other bandage and a healthy blue orb blinked at her in a puzzled way. "I must have been mistaken," said Miss Finch shakily. "But—but no. I wasn't! I held your eye open while he took the glass out. He said you couldn't ever see again."

"Where's Bob?" pleaded Jenny, not too interested in Miss Finch's observations.

"Why—why he's been outside all morning. He broke his nose and his arm, but we let him go home."

"Bring him in," pleaded Jenny.

With misgivings the nurse brought Bob to the door. He was limping and his arm was in sling and his face was almost hidden by adhesive tape.

"Jenny!" cried the boy. "Then you'll live! I——"

"Sure she'll live," said Doughface unexpectedly. "No dame sits up in bed and looks at a guy that way if she's on her way out." With a tramp's boldness he added, "You goin' to marry her?"

Bob stared at Doughface. "Why—why I guess so."

"Yain't bad lookin'," said Doughface.

"Do you mean you would?" said Jenny to the boy.

"Why—gee—I been tryin' for months to get up nerve——"

She held out her arms to him and he freed his own from the sling and held her close.

"Please!" cried Jenny. "Bob Tully, you'll compound that fracture if you don't stop that nonsense!"

"Fracture?" blinked Bob, staring at his arm and moving it around. "Why—why it feels perfectly all right." He stepped back. "But it's stuffy in here." He pulled at the adhesive tape on his face.

"Stop!" cried the distract Miss Finch.

It was too late. The tape was off and other than the marks the stuff had made, there was nothing wrong with Bob Tully's face.

Miss Finch tottered to the window and shoved Tom Johnson aside. She leaned out into the air and finally got herself composed. When she turned around the girl was stripping the cast from her arm and with dull eyes Miss Finch watched her. She was not even shocked when she saw that there was nothing wrong with that arm.

"What's the matter with you?" said Doughface. "You shouldn't get mad just because everybody's been goldbrickin' on the doc. Hell, I done it lots of times." He sat up straight in bed. "Cheer up."

Miss Finch instantly smiled. Suddenly she could not repress an impulse to approach Doughface. She picked up the tray and put it before him and then she kissed the bandaged top of his head.

"Whatcha doin'?" gaped Doughface.

She, too, was confused about it. "Eat your chicken."

"May I have my clothes?" said Jenny Stevens.

Tom Johnson saw that he was in a nightshirt and quickly slid back into his own bed. "Mine too, Miss Finch."

"Aw, what do you want with clothes?" demanded Bob Tully. He threw a blanket around the girl and picked her up in his arms.

"Where are you going?" demanded Miss Finch.

"Why—to carry her home," said the boy.

"But that's half a mile!"

Bob juggled her weight in his arms

and frowned. "Why, you don't weigh much more than twenty pounds. That's funny. Maybe you're lighter or I'm stronger."

"Please," whimpered Miss Finch. "I don't care what you do, but get out before I go crazy."

DOC PELLMAN was in the doorway. "What's all the noise back here?" he said, smiling. And then the full import of what he saw struck him. A dying girl was beaming into the face of a boy who carried her with a fractured arm. A Negro dying of cancer was smoking a cigarette and giving him a white-toothed grin. And there was something changed about Miss Finch too. She was prettier than before.

"Doctor," said Miss Finch. "I don't —" And there she stopped in amazement, staring at Pellman.

Doughface, at the sound of "doctor," had looked up from his chicken with great interest to beam upon his benefactor. All eyes were on Pellman now.

An old man had stood in that doorway. His shoulders had been stooped and his white hair shaggy and his face seamed with kindly wrinkles.

Pellman had not moved, did not seem aware of any change in him.

But now his hair was curly and brown and his face was that of a man of twenty-one. His shoulders were square and almost bursting through his black coat. His long-fingered hands were not wrinkled now. Only his eyes were the same. They were still kindly and wise.

Bob Tully dropped his girl back to the cot in astonishment. Tom Johnson's eyes were like tea cups. Miss Finch was open-mouthed and if she had not seen the doctor's graduation picture—class of '86—upon the wall of the office, she would not have known this fellow at all.

He was still Dr. Pellman.

But he looked four years younger than

he had on the day of his graduation from medical college. His staid, elderly clothes struck Miss Finch as ridiculous now and she began to laugh, almost hysterically.

"What's the matter here?" said Pellman, concerned with what he had seen and now worried about Miss Finch. He strode forward and faced around again. "Has everybody gone crazy?" He stared at Miss Finch. "My dear girl, what on Earth is so very amusing?"

"You!" choked Miss Finch. "You look like you stole those clothes from a scarecrow."

"My clothes?" said Pellman, taken aback.

"Your clothes," said Miss Finch.

Pellman took himself to the mirror to see what had happened to his suit. But he forgot that instantly. He stared at his own image. Suddenly he snatched the mirror from its hook and gazed at it in amazement, turning it over after the fashion of a child expecting to see the other child. He looked again and winked an eye to be sure it wasn't an old photo of himself. He opened his mouth and made a face. So did the mirror.

In consternation he whirled around, again looking at his nurse and patients. Tom Johnson was nearest and Pellman slammed him back on the cot and began to tap the region around his heart. More amazed than ever he advanced on Bob Tully and pushed at the perfectly normal nose. He whipped off the boy's bandage and examined the arm to find no sign of abrasion or break. He picked up Jenny Stevens' arm and studied that, finding it a normal arm with a thin, silvery scar where there should have been a compound fracture. He pushed her back and poked his fingers around, unable to again discover the broken ribs which had pierced her lungs. Finally he hauled the bandages from the face which had been unrecognizable for its



Doughface was scared. The dogs were big and vicious, and with a tramp's instinctive hatred of dogs, he jumped back, glaring. The dog went limp and died in mid-air!

cuts and breaks. Jenny Stevens was more beautiful than ever.

Pellman whirled on Miss Finch. "What happened in here? What—Say! There's no mole on your chin!" Again she touched the spot and again was bewildered.

"Can this be I?" said Pellman, picking up the mirror. "Can this be we?"

"Smatter, doc?" said Doughface, gnawing a chicken leg. "I was thinkin' you was an old geezer. Thought you was for a minute. But that ain't nothin'. I sure want to tell you that I

think it was pretty swell, your fixin' me up. Whatja have to do t'me?"

Pellman looked steadily at the grinning tramp. The man had not appreciably changed and was still not wholly well. Pellman examined the edges of the wound and then saw that the scalp which covered the silver skull had healed very rapidly.

But, alone in all that room, Doughface Jack was the only man not perfectly cured.

"Want some more chicken?" said Pellman irrelevantly.

III.

DR. PELLMAN, the following day, paced up and down the middle of his office in deep thought. He had some medical books open on his desk, pages flopped out as though they had expired.

Miss Finch sat by the window looking down into the street. Every time she glanced at the doctor she received a distinct shock. It was disconcerting to work for two years with an elderly, fatherly gentleman and then suddenly have him turn into an athletic youth who might have posed for a collar advertisement. It was also disconcerting to have this young man keep calling her "child" and "young lady". And it was also very hard to remember to address him with due respect.

Pellman stopped and with a savage sweep sent the medical books thudding to the floor. "Damn it! I tell you there's no answer that I can find. Cancer does not cure itself in an instant! An eye will not heal of itself so swiftly—if it would heal at all. A broken arm is a broken arm and compound fractures are compound fractures!"

"And moles," said Miss Finch, "are moles."

"Yes! Moles are moles! And they don't just vanish like that unless something is done to them. I tell you, young woman, I laid awake all of last night trying to get an answer and I'm still hunting!"

Miss Finch looked at him and thought he was more handsome than ever when he became so wild in his gestures and so dynamic in his excitement. Nobody in her memory had ever seen Dr. Pellman that excited.

He stomped over to a mirror above the wash bowl and stared at himself. He ran his hand over his smooth jaw to make certain it was real. He faced her anew.

"And as for me, I'm either crazy or

Say, maybe I *am* crazy. Look," he said, striking a pose, "am I or am I not a—an aged patriarch?"

"You look like a college boy," said Miss Finch, heart thumping. "You—you're very handsome."

"That's it. I— What did you say?"

"I said you were very handsome."

Pellman crossed to the mirror again and looked at himself. He let down a little and smiled. "Sure. I used to be quite a boy. Say, Miss Finch, I think I'll get some clothes. This frock coat doesn't look so good on me now, does it?"

She smiled and shook her head.

He examined his face again. "Huh. If I don't watch myself some young lady is going to set her cap for me."

"Yes," said Miss Finch quietly, involuntarily touching her white cap.

"And I'm talking like a fool, too," decided Pellman, all business again. He resumed his pacing up and down the floor, shaking his head as he went.

At the end of a long time he came to a decisive halt.

"Miss Finch, I may be wrong. It may be the tramp and it might not be the tramp. I've got to make a test."

She got up expectantly.

"Miss Finch," said Pellman, "you go down the street and find Sarah Bates and her consumption and her ruined love affair. Find a kid with warts. Nice, big warts. Find old 'Thunder' McClain and his grouch. Locate Mrs. Toby's youngster—the one with eczema. And bring them here. Bring anybody here with a cold or a headache. Go get 'em!"

Miss Finch slipped into her jacket and went swiftly out. Pellman walked back to his ward and entered.

DOUGHFACE JACK was lying in bed, propped up with pillows and admiring a view of a peach tree outside the window. He heard the door open and

turned to beam at Pellman.

"Gee, doc, this is the nuts. I been sick a few times in my life, but I'm tellin' you, I never thought it could be like this. I feel tops, I'm tellin' you. I'd get up if——"

"You stay where you are," said Pellman, moving to his side and pulling out a cigar case. "You're perfectly well today and you ought to be sick as a dog for another month at least. Have a smoke?"

"Y'mean I hadn't ought to be well?" said Doughface Jack, taking two.

"By all the rules and regulations as hereinbefore stated, you shouldn't have lived in the first place. But you did and here you are and you're perfectly all right."

"Y'mean," said Doughface, looking sad and wistful on the instant, "that you're goin' to boot me out of here, doc?"

"Listen, fellah, quit that panhandling snivel and light up."

Doughface grinned instantly. "Y'know y'way around, dontcha, doc."

"A man that's handled all the sickness of Centerville for forty years ought to," said Pellman.

Doughface blinked. "Forty years? Hell, y'stringin' me. You won't be forty for another twenty years."

Pellman was about to contest the point with severity when he suddenly remembered. He shrugged and touched his lighter to the tramp's cigar.

Doughface sat back, drawing his knees up, folding his arms and puffing contentedly. "Chicken and ice cream and now a ten-cent cigar. Yeah, doc, this is the nuts. Anythin' y'want done, now, just say the word. I'd even chop some wood for you."

"You've got something to do," said Pellman. "Listen, a lot of my friends are coming up here to pay you a visit and you be on your good behavior, understand?"

"What do they want?" said Dough-

face, suspiciously. "I been up against Ladies' Aid Societies before this, doc, and I ain't——"

"No, nothing like that. You just lie there and say nothing. I'll do all the talking."

"You're the boss," said Doughface, puffing away.

Footsteps sounded in the outer office and then Miss Finch was at the door, gazing in admiration for a moment at Pellman.

"Yes?" said Pellman.

"I brought them;" said Miss Finch, recovering herself with a start.

"Show them in," said Pellman. "No —wait. I'll talk to them first."

He went into his office. His guinea pigs were there in various stages of disorder. Sarah Bates was feeling very poorly and wanted everyone to know about it, gazing sadly with blue eyes too large for her sallow, thin face.

A small boy was very suspicious of the proceedings and had his hands behind his back because Miss Finch had spotted the warts on them. He was very ashamed of his warts.

THUNDER McCLAIN was stumping about, muttering to himself, bent over and twisted with arthritis and meanness and old age. Mrs. Toby's youngster was backed into a corner, conscious of eczema and wondering what was going to happen. Storekeeper Durance sneezed loudly and blew his nose on his apron.

"Good people," said Pellman, "I——"

"Won't!" said Thunder McClain defiantly. "See here, Doc Pellman, you order——" He stopped, his watery eyes growing wide. He had not seen Pellman for three days. "Huh? Who are you? I thought I heerd Pellman talkin'."

"I am Pellman," said the doctor.

"Hogwash!" stated McClain. "Y' think I wouldn't know Doc Pellman if I seen him? Maybe you think I'm blind

too! See here, you young whipper-snapper, nobody is goin' to order me around unless I knows what's happenin'!"

"Good people," said Pellman, again. "I—"

"Doctor," whined Sarah Bates, "I think I am going to faint."

"Postpone it for a moment, Miss Bates," said Pellman. "I called you here to show you the result of an interesting experiment in surgery."

"Humph," said McClain.

"As you are among the best citizens of Centerville," said Pellman, "I wanted to show you something very unusual. Now, if you will please follow me I'll be greatly obliged."

They followed without much interest.

Pellman led them into a half circle about Doughface Jack's bed and they came to a halt and fidgeted.

Doughface Jack removed the cigar from his mouth and looked to Pellman for his cue.

"Jack," said Pellman, "I want you to meet these very good friends of mine. They are much interested in your case." He saw Doughface start to don his pan-handling expression and checked him. "The town has already taken up a collection for you."

Doughface grinned and stuck the cigar back in his face.

"This is Sarah Bates," said Pellman.

Doughface grinned at her and nodded and then went on smoking.

Sarah Bates raised her nose at the odor. "Doctor, it is a little close in here and I am feeling—" She tried to cough but could not make it.

"Miss Finch!" said Pellman. "Wait in the outer office, Miss Bates."

The elderly woman tried again to cough and was greatly perplexed at her inability to get more than a clear sound. Doughface thought it was funny and his grin broadened.

"And this," said Pellman, hurriedly, "is Mr. McClain."

"Humph," grumbled Thunder McClain. "Never thought I'd have to be introduced—"

"Of course not," said Pellman swiftly. "But Doughface is going to be a pretty famous fellow, Thunder."

Doughface beamed.

"This is Durance," said Pellman. "He wants to know if you want some cookies."

"What?" said Durance.

"He's got a whole store full," said Pellman.

Doughface beamed again.

"And Jimmy here," said Pellman, "wants to shake hands with you, Doughface. He's a real tramp, Jimmy."

THE SMALL BOY advanced cautiously and held out his hand. Doughface took it, felt the roughness of it and looked at it. "Huh. Warts. Y'know how to cure them things, kid? Y'take some punk-water at midnight in a graveyard and say real fast, 'Devil, take my warts!' and zing! they'll go just like that!"

Doughface snapped his fingers and the boy stared at his own hands. "Why—why, gee whiz, Dr. Pellman. Gee whiz, I—why, what happened to these warts?"

"And this is Jullie," said Pellman quickly.

Doughface beamed on Jullie, Mrs. Toby's child.

"Now get out, all of you," said Pellman, shooing them off.

He went back into his office. A young man in baggy corduroy was there fumbling with a crooked cane and looking in perplexity at a young and beautiful woman who, from time to time, tried unsuccessfully to cough.

"Look here," said Thunder McClain to Pellman, "you ain't goin' to fool me none, young feller. When I see Pellman and tell him you been makin' free with his office and patients, he'll give you suthin' to think about. An' what've

you done with Miss Bates?"

The lovely blonde looked up in surprise. "Why—why you sound just like Thunder McClain." She peered at him carefully. "But no! That can't be! Thunder McClain wouldn't get married when he had a chance and he's never had a son—and yet—yet you look just like a son would look if—"

"I am McClain," stormed the youth, banging his cane down.

"Doctor," begged Miss Bates, "are you going to let a poor maiden lady be bullied by this young fool?"

"Young fool?" cried McClain. "Young woman, I'll have you know that—"

"Stop it," said Pellman, pulling the mirror off the wall and handing it to McClain. "Look at yourself."

McClain looked grudgingly and then suddenly gaped at his image. He looked at Pellman but he couldn't get a word out.

Pellman took the mirror away and shoved it at Miss Bates. She gazed at it without interest at first. Then she, too, suddenly realized that something had changed.

She felt of her fresh skin. She opened her mouth and looked at her tongue. She held the mirror back and saw the rounded curves which had taken place of her flatness.

"Why—why—"

"Yes," said Pellman, "it's happened. You are now possessed of the wisdom of fifty and the youth of twenty. Both of you. And a long time ago, I seem to remember, you were both twenty with no more sense than to quarrel over some trivial thing. You have your chance again."

They were stunned.

"Get out," said Pellman.

They edged toward the door, looking at each other. Thunder McClain loosened his collar. "Gosh, Sarah, you look just like you did that there night when—"

"Don't," said Sarah Bates pleadingly. "Let's forget, Thunder. For thirty years I have known that I was wrong and—"

"I was wrong!" cried Thunder McClain.

"Oh, Thunder," said Sarah, "you're—you're just like you used to be and—and I love it."

PELLMAN heard them going down the steps and then remembered that the two children and Durance were still there.

"Let's see your tongue," said Pellman to Durance. "Ah—just as I thought, young fellow. Your cold is gone."

"Why—why so it is," said Durance, remembering. "Gosh, did I get young too?"

"I'm afraid you did," said Pellman. He handed the mirror to Durance.

He took the two children by the shoulders and led them to the window. Jimmy he examined for warts and found none. Jullie's eczema had vanished. He gave them a quarter and pushed them out of his office.

Miss Finch sat down at the window in a daze. "It's happened again. It is the tramp who does it."

"Yes. But why? That's what I want to know. Why?"

Pellman resumed his pacing up and down the floor. Miss Finch sighed.

"I've got it!" said Pellman excitedly. "I'll get hold of Professor Beardsley in New York. He's been monkeying around with such things. He'll know!"

He grabbed for his telephone and Miss Finch, disgusted, listened to him start the call.

IV.

"MOST excitement this town's had in years," said Sheriff Joe Bankhead, pulling at his mustache. He sank down in a chair across from Pellman and signaled for some beer. Then he dragged

out a bandanna and mopped at his face. "That shore was a crowd, doc. Thought we'd never get the way clear for them to get aboard."

Pellman poured his glass full. But he did not drink. His young face was pensive and he was staring thoughtfully into the great distances.

"How come all this happened?" said Joe. "I can't git it through my thick skull that you're you. I seen you yesterday and almost before I thought I almost said, 'Hello, sonny.'"

Pellman smiled. "Can't say as I'm used to it either, Joe."

Joe noisily drank his beer and then wiped his mustache. "Was them real honest-to-god professors and things?"

"Real, honest-to-god professors, Joe."

"I still can't figure it out. What would professors want with a tramp?"

"I hope they know," said Pellman. "I was sorry to—— Oh, well. What the devil. After all, I didn't have a bill of sale on Doughface Jack."

"I kinda figure he didn't like leavin' you, doc. He kept lookin' at you after he got on the platform like he was minded to stay."

"Joe, it isn't right. I have a feeling it isn't. Something may happen."

"What? He ain't dangerous. He's just a tramp."

"Just a tramp," echoed Pellman thoughtfully.

"Well, ain't he?"

"Joe," said Pellman, "that 'tramp' could do more for this world than any other living man. With a glance he can cure anything. But——"

"Yeah, I heard somebody say that. But I think it's the bunk, don't you, doc? How could a thing like that happen?"

"You saw what happened to those people that went in to see him all last week," said Pellman.

"Yeah, but——" Joe shook his head. "How could a thing like that work, huh?"

Pellman smiled wickedly. "Have you ever heard of mitogenetic rays, Joe?"

"Huh?"

"Mitogenetic rays. They were first discovered as coming from onions. 'Mito' means a thread and 'genetic' is the same as generator. Thread-generators, then. Onions grow better when there are a lot of onions around. But no weeds grow in an onion patch. Onions, throwing out their mitogenetic rays, kill weeds and benefit other onions."

"Huh? How come?"

Pellman shrugged.

"What's that got to do with Doughface Jack?" said Joe.

"I put his brain together. I had to sew up the two halves because of skull splinters and such. That's the first time I know of that the two halves of a man's brain have been connected. And then the entire brain is under silver, which will carry most currents. That's as close as I can get."

"Y'mean that Doughface Jack has an onion in——"

"No!" said Pellman. "Every man has those mitogenetic rays in his head and nerves. Almost any human can look at yeasts and kill them just by looking. For instance, you could kill the yeasts in that beer just by staring at the beer and concentrating——"

"Huh? Is this beer alive?" said Joe, startled.

"ANYHOW," said Pellman, gently, "by connecting up his brain and short-circuiting the wave action I didn't hurt his thinking processes, but I increased his generation and concentration of the mitogenetic rays to a very unusual degree. A man has about fifty million nerve ends in his eye, and so, when Doughface Jack gets pleased about anything, his brain is increasing its energy and these nerve ends exude mitogenetic rays in measurable quantities. A very little will do a lot of good. Thus, when Doughface Jack grins at a man and

feels kindly toward him, the onions prosper and the weeds die out."

"Then he *has* got onions in him," said Joe, triumphantly.

"No," pleaded Pellman. "But Doughface is human. He can benefit human cells and only human cells. All foreign cells—such as disease germs—being weeds in the human system, die out very swiftly. As a man uses only from half to quarter of his lung tissue, one smiling glance from Doughface Jack restores all that lung tissue and further oxygenates the blood stream and again that man is better able to fight disease and otherwise grows stronger."

"Huh," said the badly puzzled Joe. "Gimme another bottle of beer, Ed. Doc, all I can see now is Doughface Jack walkin' around with an onion for a head."

"Another beer here," said Pellman. But he was almost oblivious of either the waiter or the sheriff. A new thought had hit him.

"Y'worried?" said Joe, concerned.

"A little," muttered Pellman. "I don't think he could ever kill a human being as he himself is human but he might make a man awful sick and well, any other life—" He stopped talking and thought to himself, "God help Doughface Jack if he ever goes to a dog show." Aloud, he said, "The world isn't full of—onions, Joe."

Joe blinked in perplexity. "Drink y'beer, doc. After all, the guy's just a lousy tramp."

V.

DOUGHFACE JACK was highly elated. He had just done a very clever thing. He had walked out of the University and clear down to Central Park without once being molested. He chuckled about it, very pleased. Although he enjoyed being lionized in the clinics, and though the newspaper stories and the pictures of him tickled his fancy,

he had been in New York for two months—and being two months in one place was akin to agony to the wanderlust of the tramp.

And all would have been well, even then, if a debutante had not fancied herself very powerful in the control of two white wolfhounds.

At the moment he was watching the clouds roll high overhead. And so he bumped squarely into one of the wolfhounds and trod on his tender toes.

Instantly he snarled and snapped.

Doughface Jack leaped back, unmanned for the moment. He had a tramp's true distrust for dogs and he saw two raging beasts, so it seemed, charging to devour him.

He saw he could not run. He must meet them as they sprang.

He mustered up his fighting courage and—

The two wolfhounds fell dead.

It was as simple as that. One minute they had been springing. The next they lay, two doormats of wool, on the walk.

The girl stared at them in disbelief and then at Doughface Jack. Abruptly she whirled. Far away she spotted a mounted policeman coming on the trot to see what all the snarling had been about.

"Help! Police!" screamed the girl.

"Please," begged Doughface. "Please, ma'm. I didn't do nothin'!"

She turned again, glaring and shaking with hot rage. "You murderer! I saw you knife them!"

Doughface Jack blinked at her and then he got just a little bit mad himself.

The girl's anger faded. She put her hand to her face and her knees became wobbly.

Instantly Doughface was concerned.

The girl stood up straight, mad all over again and very blistering in her language.

"What's goin' on here?" snapped the

officer. He started to get down from his horse.

Doughface saw danger. Too many years he had run from cops not to run again. In panic he took to his heels.

Doughface saw that he was done. He envisioned a striking club and perhaps another hospital. He saw himself losing all his prestige. The Law was on his trail.

He could run no farther.

He turned around. He saw he could not win, but he had to do something. He struck a belligerent pose.

THE POLICEMAN'S horse dropped dead with a mighty crash, spilling the officer to the concrete.

The tramp was shaking with terror. He had not one ounce of scrap in him now that the Law had him securely.

"Please," he whimpered. "I didn't cross—"

"Mister," said the tattered officer, "you got some questions to answer. That was Miss DuVrois back there and—and the guy that kills my horse is goin' to sweat. *Plenty!*"

And other cops came running at last and Doughface Jack, shaking as though with the ague, certain of his doom, afraid to show any fight, was wheeled off to the precinct to the tune of a wailing siren.

Doughface Jack was caught in an avalanche of blue which bore him out of the wagon, up the steps of the station house, down dingy corridors and into a room where sat a desk sergeant of large dimensions.

"Book this guy for disorderly conduct," said the outraged mounted patrolman, "until I can sweat some real crimes out of him!"

Again the wave picked up Doughface Jack and hurled him along a corridor and into a room where a white light glared. Doughface landed in the chair and the light bored into his skull and

faces ringed him round.

"Please," he whimpered. "I didn't mean ta—"

"Howja kill them dogs?"

"Howja kill my horse?"

"C'mon, talk!"

"Ja use a knife?"

"Whereja throw it?"

"Y'know this might mean a year in the pen?"

"Howja kill them dogs?"

"Please!" moaned Doughface. "I didn't do nothin'. I'm the guy with tha-tha eyes. C-call up the university. C-c-call Professor Beardsley. I—"

"So ya won't talk!"

"Howja kill them dogs!"

"Please! I'm the guy with the *eyes*! Call Professor B-b-beardsley. I didn't do nothin'. I—"

"So ya won't talk!"

"Howja kill my horse?"

"Please!" wailed Doughface. "I don't know. Things happen and I don't know! I tell you, y'gotta call Professor B-b-beardsley."

One of them heard him and grabbed a phone. The third degree was about to begin when he came back.

"Wait! Beardsley said this was the guy with the mito-something eyes. Y'know. In the papers."

"Yeah, but my horse—"

"Please, please, *please*," moaned Doughface. "I—"

"Wait!" cried the man who had phoned. "This guy's got somethin' screwy about him. He can cure anythin' he looks at." He had their attention now. "And Beardsley says for God's sake don't make him mad!"

Doughface couldn't see very well because of the light, but he could sense the way they suddenly drew back. He could see the awe. He sat up straight and scowled, testing it out. They drew back further.

Doughface understood now. They were scared of him—or at least they weren't going to jump him. He had to

put up a front and get out quick before they jailed him.

He kicked at the lamp and it spun, taking its light from his face. The officers bristled anew.

Doughface got halfway out of his chair. He was glaring now, getting mad and acting dangerous in the hope that he could cow them.

AND AN awful thing happened. The men began to get wobbly. One grabbed hold of the table for support and then his knees buckled, letting him down. Another backed to the wall and slipped from there to the carpet. The mounted officer fell flat on his face.

Abruptly he realized what would happen to him if he was found here with these knocked-out cops, and in a panic he rushed out into the corridor.

The sergeant's yell had been heard on the next floor by an old pavement bull named Flannagan. He was renowned for his asperity and he looked at least as old as Pharaoh's mummy. Grumbling about what the force was coming to, Flannagan hobbled down the stairs.

He saw the door of the third degree room open and peered inside. His wrinkled jaw dropped as he eyed the moaning men strewn about the floor within.

"What's the matter with you?" wheezed the ancient one. "Y'got colic?"

"Oh-h-h," groaned the sergeant.

Flannagan knelt, his old joints cracking. "Speak up!"

"A guy . . . with a pasty face . . . all he done was look an'-an' I keeled over. G-get me to a hospital."

Flannagan stirred him up crossly. "An' what's the matter with you?"

"He—he's the m-m-man with the eye," groaned the mounted policeman. "He—he just . . . l-l-looked and . . . ugh!" He collapsed on the floor. But Flannagan stirred him up again. "He's got a—a pale face—black hair—dark suit—ugh."

Flannagan was convinced that something was wrong by that time. Two men had told him the same thing, and his Irish mind was capable of appreciating such things as an Evil Eye.

He tottered to the radio room and snapped the mike away from the operator. "Calling all cars. Calling all cars. Pick up pasty-faced man in dark suit. Pick up pasty-faced man with dark suit. Know him by his eyes! Calling all cars—calling all cars—"

And the holocaust of Manhattan had begun.

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IN TIMES TO COME

OCTOBER starts the sixth year of *Astounding* under Street & Smith. Naturally, I've tried to make it good, and representative of what I plan for the coming year. First, L. Ron Hubbard's *The Tramp* builds up toward the final climax—a first-rank novel as you can tell by the first part appearing this month.

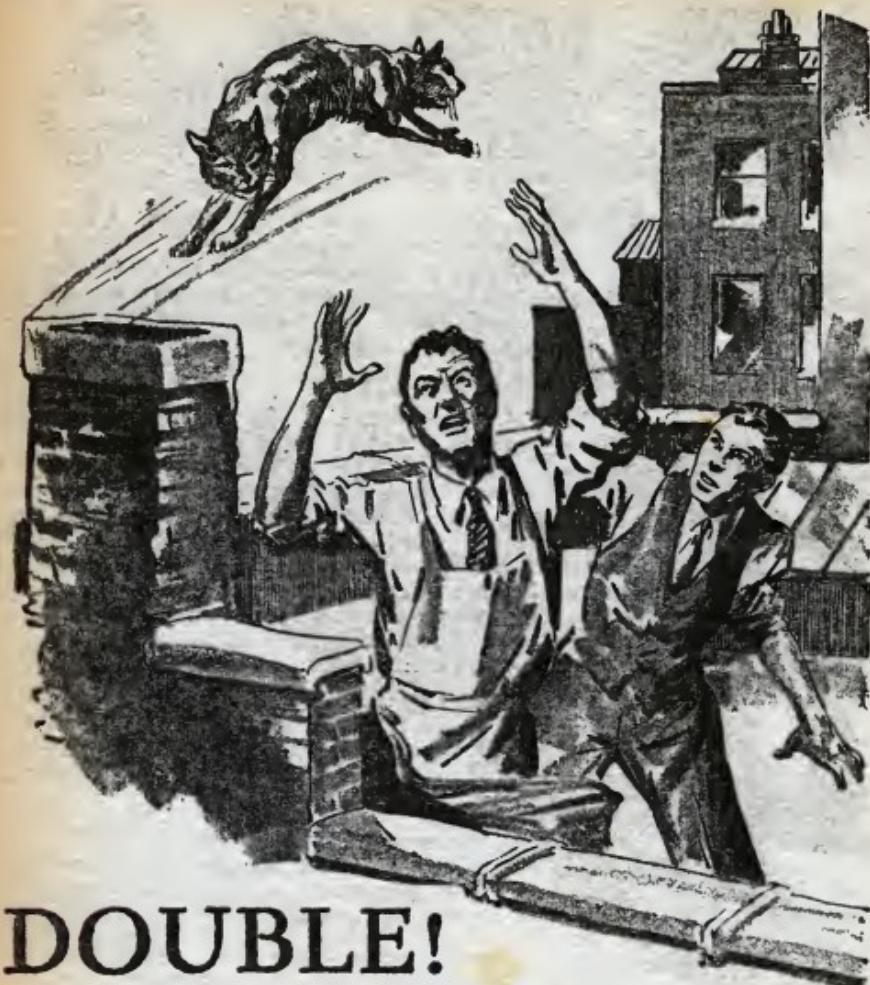
THEN I promise two novelettes that will be remembered. Clifford D. Simak in *Hunger Death* gives the finest picturization of the new frontier of Venus that any science-fiction yarn has contributed. It's a yarn with a good idea—but more, with real people. The second novelette is *Astounding's* third mutant. It has a genuinely new idea—and a fascinating, ingenious plot it makes! Furthermore, *Other Tracks* represents the value of the new writer—for this mutant story is by a new author, William Sell.

I PLAN to make it hard to pick the best story of the October issue. L. Sprague de Camp, who scored such a unique success with his fact article, *Language for Time Travelers* in the July issue, has a story, *The Command*, in the October issue that warrants an equal triumph. The hero is, I think, among the most unusual in science-fiction. Johnny Black is a gentleman, a gentleman of the old school, though somewhat eccentric. His favorite occupation is reading the *Encyclopædia Britannica*, which leads to difficulties since he likes to chew tobacco and turn the pages with his tongue. Not that he's crippled—far from it! He's an athlete, with superhuman reaction-speed, so fast that he can catch a fish swimming in a stream by pouncing on it. And that despite the fact that he weighs nearly 500 pounds! No—he's not fat, and he's not afflicted with giantism. He's just—highly unusual and equally amusing.

THE ANALYTICAL LABORATORY

BELLOW are the standings for the July issue. Gentlemen, I am personally Astounded. When E. E. Smith's *Catastrophe* made a showing in the first five places, it broke all records for popularity of articles. The record is shattered; all records are shattered. I am slightly befuddled. With something of hesitancy, I decided to see if L. Sprague de Camp's highly interesting knowledge of English pronunciations and changes would make an acceptable article. I thought the product good, but wondered a bit as to its reception as a science article. It was received. It won an entirely unquestioned first place—by a 15% lead over any story! Simak and Rocklynne were practically tied all month.

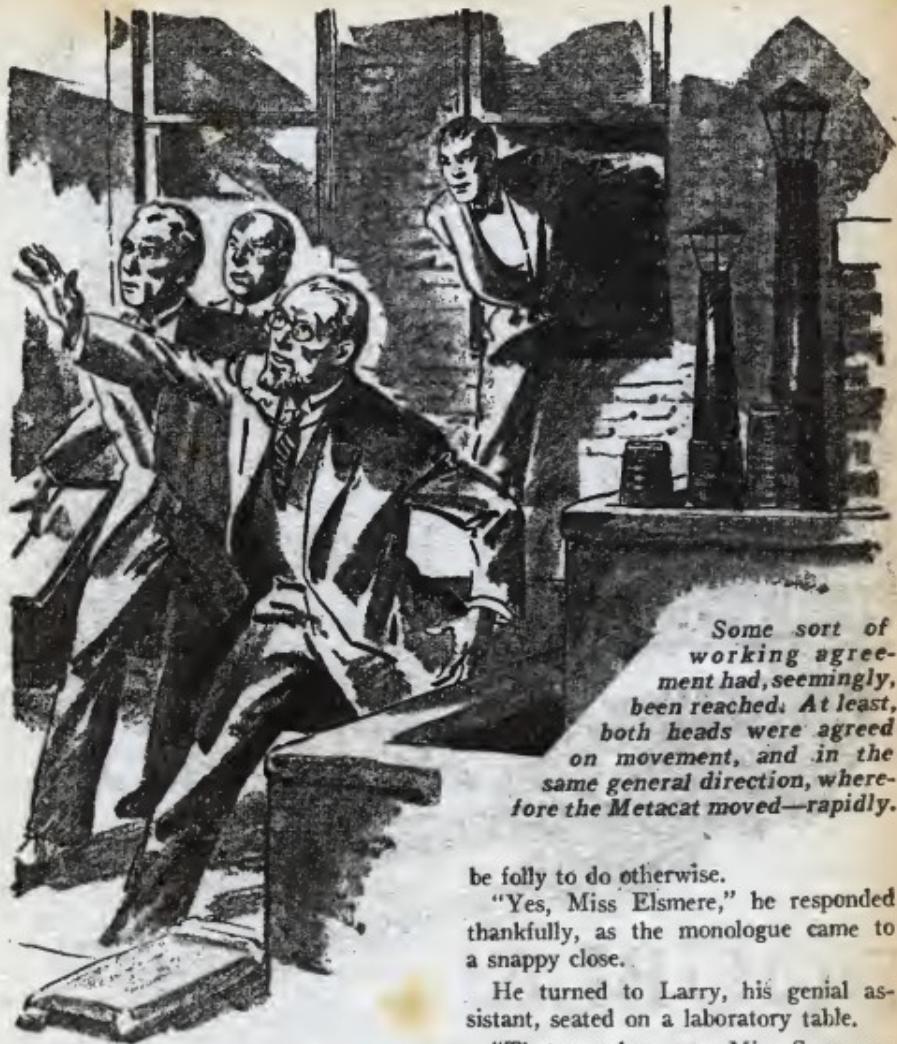
1. Language for Time Travelers	L. Sprague de Camp
2. The Dangerous Dimension	L. Ron Hubbard
3. The Legion of Time	Jack Williamson
4. Rule 18	Clifford D. Simak
5. The Men and the Mirror	Ross Rocklynne



DOUBLE! DOUBLE!

A new author, Eddin Clark

*tells of double-barrelled—or at least double-ended—
trouble stirred up by biologist-most-extraordinary
Gregory Allen. An unusually batty yarn.*



Some sort of working agreement had, seemingly, been reached. At least, both heads were agreed on movement, and in the same general direction, wherefore the Metacat moved—rapidly.

be folly to do otherwise.

"Yes, Miss Elsmere," he responded thankfully, as the monologue came to a snappy close.

He turned to Larry, his genial assistant, seated on a laboratory table.

"That, my boy, was Miss Sourpuss, if you intended to ask. She is, in person, the local chapter of the Help Our Little Helpless Creatures Society. It seems she will soon be here to solve our problem for us. All but the work, of course. Reminded me of the Queen shouting, 'Off with their heads'—"

"But they haven't any!" Larry interrupted, to be silenced as Gregg continued.

"The difference being that Miss Elsmere says, 'On with their heads', or

GREGORY ALLAN shuddered as he visualized the pinched feminine features of the lady at the other end of the wire. He shivered a little as the high-pitched nervous voice continued to vibrate against his eardrum despite the fact that he held the receiver a good distance from his head. Beads of perspiration stood out on his forehead.

Gregg was merely listening. The tone of his caller assured him that it would

words to that effect. She insists that if we don't do something—at once—she will arrive with the cohorts of law and order. They will probably be armed with hatchets and mow us down in chunks. From the sound of her voice she could fuse a quartz tube with the heat of her temper."

Larry flopped back on the table with an exhalation of disgust. He bounced up again and went into contortions as he attempted to rub the spot where a forgotten Bunsen burner had left its mark.

"Looks like she has caused me trouble already," he groaned.

Gregg smiled until the realization snapped back at him that there wouldn't be much smiling around the private laboratory from then on.

"We'll have to fold our tentacles and steal like an Arab, if the Old Maid Society is going to run our lab for us," he commented. "The only other solution is to do as Miss Elsmere wants—and that is impractical both theoretically and practically."

Gregg entered the tank room and glanced idly about. He automatically adjusted the flow of the feed solution into one of the protoplasm tanks. Seating himself at the recording desk, he attempted to concentrate on the work before him.

Life teemed in the great tanks about him. Millions of living cells, in concentrated blobs within the feed solution, were being controlled and guided toward a state of high development. Organisms floated there in a real parasite's Paradise, living within their food. These needed and should have drawn Gregg's instant attention, but he ignored them.

A mental image of the satanic Miss Elsinere flooded his brain. She was to him the compact image of all the professed moralists who, in the name of humanity, fight anything they are unable to understand. He could imagine the ardent gleam in her eye as she swung

an ax amongst his equipment.

Gregg's musing was terminated by the appearance of Larry's grinning and seemingly disembodied head around the edge of the door.

"Boy, Gregg! Dick Davis must have turned that science note into a publicity stunt! Crowds are arriving. That is, Professor Lakeman and half a dozen others from the University are here. You're due for more battle than that lady will ever give you. What shall I do with these guys?"

Gregg was already on his feet.

"We can talk to them in the office, I guess."

HE FOLLOWED Larry through the long central room that served as a laboratory. He immediately recognized the men waiting in the outer room which served as an office. Besides Lakeman and his assistant, Butler, from the Biochemistry Department, the biologist Telium, and Dr. Dee, Director of Research, seemed glad to see Gregg. Dr. Dee's assistant, Dr. Donough, stood a little apart from the others in his usual bored and dissatisfied manner. Dr. Gabman, physicist, stood in a pose of deep and studied concentration, his gaze fixed hopefully on a sickly looking inkwell while he thoughtfully rubbed the lobe of his ear.

Gregg started to greet the men, but Professor Lakeman interrupted with a genial outburst.

"Congratulations, Gregory!" he roared. "That is—ah—if you have really done what the news account suggested. Of course we all know how that newshound, Davis, is always gabbling facts and leaving a wrong impression. We realize that there is often a lot of fiction in his column, but we decided to come along and find out if you might have really discovered something."

Gregg was rather taken back by this meandering speech.

"Don't you think it would be a good idea," he suggested, "if we would all sit down and talk for a moment?"

While the men found seats, Gregg came to the conclusion that it would be best for him to take the initiative. He addressed them all, but his speech was directed at Lakeman.

"Gentlemen," he began, "you are naturally doubtful as to any possible accomplishment or discovery which I might have made. Yet I want you all—and especially you, Professor Lakeman—to realize that all of my experiments, and the results due to them, could have been accomplished just as readily in your laboratories. Professor Lakeman knows that. I outlined my theories to him when I studied biochemistry in his classes. He laughed at them."

"Now, Gregory," Lakeman interrupted, "that is rather harsh. You were a fine student, but your ideas, your theories, were radical—too radical!"

"That's just the point, Professor. You follow accepted theories as a locomotive follows a track, and shun anything new as if it were a rattlesnake. The electric light was radical fifty years ago. Now our greatest industries would be thrown into chaos without it. My work happens to be with living cells. You remember my theory, Professor?"

"Something about individual cells being developed into complete organisms, wasn't it?" the professor questioned. "Controlled by light waves and electrical charges?"

Dr. Lakeman hadn't foreseen this cross-examination, but it was apparent to him that the others appreciated his discomfiture.

"That is part of the idea," Larry explained. "We start with the contention that all life is an electrical phenomenon. That is old, and sound enough for a foundation. My theory is that the individual cell—any living cell—is a complete life unit. It is ordinarily dormant, of course, except in its reflex duties in

whatever part of the body it may be. Yet I contend that it contains within itself the latent power of complete development into a sentient being, similar to that from which it has been removed. This means that a cell, of the epidermis for example, may be properly nurtured and developed so that instead of merely attaching to itself an endless progeny of skin cells, it will bring to life about it a complete new body. The body of course will be similar to that which the cell originates in. Thus a cell from a chicken will develop into a chicken and not into an ostrich."

Gregg could tell by the looks on their respective faces that his audience believed him to be slightly cracked. He was so interested in observing them that he failed to hear Professor Lakeman's grumbled, "Bah!"

"Larry," Gregg winked as he spoke to his assistant, "they think we're nuts. You had better bring it out."

LARRY LEFT the room for a moment and returned with a boxlike cage under his arm. From the interior of the container came the sound of continuous movement, of something trying to escape.

Larry placed the box in the center of the floor and returned to his seat, where his unsuppressed smiling informed the others that something unusual was going to take place.

Gregg continued to speak to the men. "Before I open the box," he said, "I want you to know that you are the first to see this besides my assistant and myself. My slip last night to Mr. Davis of the *Post* has probably brought a good deal of trouble upon us. When I mentioned to him that I had developed a creature in the laboratory, he dashed away without waiting for particulars."

The men nodded. They were all acquainted with Mr. Davis and his methods.

"I have already received a call from

some animal society. I was warned to free this creature at once, put it out of its misery, or suffer dire consequences. As men of science you will understand that I do not wish to destroy it. Not for the moment at least. You will understand in a moment why it cannot be turned loose. It is the result of an experiment which, I must admit, failed even as it succeeded. You may see for yourselves, gentlemen!"

Gregg lifted the lid from the cage and returned to his seat.

Larry burst out in a roar of laughter at the gasps of surprise which issued simultaneously from the audience. He subsided to listen to their comments.

"It's a fraud!" Professor Lakeman roared. "A man-made freak!"

"No, it's a cat, a Siamese," said Dr. Dee, who was slightly nearsighted.

"Looks like two cats to me," Dr. Butler suggested.

"It's nothing at all," reasoned Gab-man, the physicist. "It's a nonentity! It's impossible!"

"Your reasoning is illogical, Gab-man," Dr. Tallum interrupted. "Your misuse of terms is a distinct catachresis. The very fact that it *is*, makes it something. It most certainly *is*, because we can see, hear, and feel it. The object bounding around under our noses is undoubtedly some type of cat. I would not, however, wish to put myself on record as having given it a name."

"We might call it a Metacat," suggested Larry.

The object in question, after its original leap from the cage, continued to cavort about the room. Its movements, while not decidedly graceful were not without a certain amount of dignity.

It was primarily cattish or feline. That is to say, it was a creature which, when seen in action under dim light, would give the immediate impression of being a cat. Yet it was more than a cat in some ways. And, on the other hand, it was rather less than two cats.

The body was distinctly feline with the smooth pelt and long limbs of a Siamese. The body tapered at each end into a distinct, cattish hind section. Each end had a distinct process, or prolongation, known familiarly as a tail. The two pair of legs were opposed in direction and action, thus creating a distinct hump in the center of the back. Despite a contented purring that issued from its interior, the creature was somewhat at a loss without a head.

In its movements about the laboratory office the creature seemed uncertain as to the direction it should travel.

First one end would hunch back and get ready to leap. Just about the time it started to spring, the other end would hunch down and pull the first end off balance. This, of course, put the creature in a quandary as it failed to make progress.

"We should run it for Congress," Larry commented.

Finally the creature agreed with itself and made a good deal of headway by developing a uniform leap-up and sidewise. It proceeded to explore the room in a humpy, jerky fashion, its main interests seeming to be in corners and the crevices under doors. It gave the general impression of being friendly when at times it came to rest. This generally occurred when it chanced to brush against the legs of one of the men. It would remain there for a moment and try to strike up an acquaintance by rubbing against their legs. These it had the ability to distinguish from the legs of tables and chairs.

Its principal trouble was that it couldn't rub very well, since both ends tried to go into action at once.

II.

ALL OF THESE reactions led to discussion among the scientists.

"It's looking for something," sug-

gested Dr. Dee, addressing his remark to Lakeman.

Lakeman merely grunted. With his back to the proceedings he stood at the window and looked out into the street. His credulity had been insulted.

"Probably for a mouse," responded Dr. Donough with an air of wisdom. "That's what cats usually look for, isn't it?"

"Maybe it's looking for two mice," Larry remarked.

"Or for a couple of heads," argued Dr. Butler. "It seems to need them."

"That," barked Tellum excitedly, "is a problem that can only be decided by prolonged study, preferably on an endowment. There are a definite number of premises that can be reached immediately—six, to be exact. First, the thing may not be looking for anything. If it is looking for something, the possibilities can be resolved into a definite calculation. Either it is a cat, looking for a mouse, or two cats looking for two mice. On the other hand, it may be one cat looking for a head, or two cats looking for two heads. Then again, it may be but one cat looking for a head, plus one tail looking for a cat."

Dr. Tellum finished his dissertation with a satisfied smirk that soon changed to red-faced embarrassment. He realized from the awed expression on the faces of his colleagues how silly his spout of wisdom must have sounded.

"What if it's just looking for a 'meow'?" queried Larry. "It doesn't seem to have one."

Dr. Tellum indulged in a dismayed groan.

"The question bothering me," Gregg asked of them all, "is, what I am to do about keeping it? It can easily be kept alive by hypodermical injections of food solution. It has been out of the developing tank for a little over twenty-four hours and no ill-effects are noticeable."

"Nothing can exist without oxygen," grumbled Gabman.

"Respiration seems to go on through the body-walls as it did during the primary development," Gregg continued. "I am not worried about the ability of the creature to get along. The thing I'm bothered about is the reforming old hag who called me on the phone a while ago and insisted that the creature be removed by gift or—"

"Hag—to be sure! I'll hag you, young man!"

Gregg jerked guiltily about to find two elderly ladies in the doorway.

The one in the lead, whom he knew at once to be Miss Elsmere, was all that he had expected. She was a lank, scrawny, loose-jointed individual with an emaciated air and a consorous stare. Her companion was a short, roundish person with a sugary smile and a sycophantic gleam in her eye.

Gregg suddenly found himself able to speak again.

"Why—ah—come right in, Miss Elsmere," he said.

This suggestion was unnecessary as the ladies were already well within the scientific sanctum, surveying their surroundings as an attacking force might look over the enemy territory while planning a delayed attack.

"You are Miss Elsmere, I presume?" Gregg continued.

"I most certainly am," the lean one snapped, in a tone that implied that with her arrival the Deities had attained their highest aim. "I am here as President and representative of the Help Our Little Helpless Creatures Society. You know our motto."

She turned to her companion and to the wave of a bony hand the duo voiced the words in gentle rhyme: "Little creatures first and foremost, never harm them, never tease them; feed them, warm them, give them shelter; they are Mankind's dearest friends."

IF THE OTHER men had previously doubted Gregg's standing as a fel-

low scientist, they now realized that he was one of them. The little byplay on the part of the ladies gave the men a chance to rally round them and block off their view of the rest of the room.

Professor Lakeman, roused from his reverie by the window, was one of the first to realize the true state of affairs. He had met Miss Elsmere before and was well aware of her captious nature.

He dropped his large hat over the Metacat which happened at that moment to be nearest to him. He then grasped a chair and seated himself, with both feet planted securely on the brim of the hat.

This happened at the very moment when the other men were offering their chairs to the ladies. The action flaunted itself like a fly in a bowl of punch.

A casual observer would have concluded that Professor Lakeman prized that chair above everything. The firmness with which he seated himself indicated that only a struggle would pry him loose.

The Professor's back was toward the others, but the reddening of a dorsal bald spot gave evidence of his embarrassment. His feet and hat were hidden from the view of the ladies by Larry's coat which was draped down the back of the chair.

Dr. Tellum felt called upon to explain.

"Professor Lakeman," he informed the ladies, "is absorbed in a very intricate scientific problem. It requires intense concentration. He may be that way for hours."

"Humph!" snorted Miss Elsmere doubtfully.

"Humph!" rumbled her companion with just a shade more doubt.

Miss Elsmere turned on Gregg, suspicion in her voice. "Has this problem anything to do with that animal of yours, Mr. Allan?"

"Why—ah—" Gregg started to respond but was interrupted by Dr. Dee,

who interposed excitedly.

"Of course not, Miss Elsmere. Most certainly not. What ever gave you such an idea? No indeed! The Professor is concentrating on the rate of expansion of the western sector of the Universe as evinced by certain photographic evidence which has just come into his possession." Dr. Dee made the statement as a friendly and protective gesture.

Professor Lakeman received it with a distinct grunt of disapproval. The statement clashed with his favorite opinion. He did not allow his hurt feelings to cause loss of control of his hat. The humping of the creature there beneath the crown indicated that it was likewise displeased.

Miss Elsmere cinched up on the taut atmosphere with resentment at the manner in which her question had been so quickly sidetracked.

"About this animal of yours, Mr. Allan," she addressed Gregg after subduing Dr. Dee with a warning glance. "Something must be done immediately! Our humane laws do not allow cruelty to be practiced on any creature!"

"It isn't an animal!" asserted Dr. Gab-man spasmodically, sticking to his first conclusion.

Standing apart from the others, he had missed the whole proceeding while lost in that line of thought. Accustomed to crowded classrooms in which confusion generally reigned until he began his lectures, he had paid no attention to the affairs about him. If he had noted the arrival of the ladies, he had immediately dismissed it from his mind as of little moment, while lost in scholarly concentration.

"What isn't an animal?" queried Miss Elsmere's companion.

"Why—uh—nothing," answered the physicist, caught off balance by the sharp question, suddenly aware of the situation at hand. "Nothing at all, madam," he repeated.

"That," snapped Miss Elsmere, "is a

fine thing to be coming from the lips of a noted scientist. The double negative in all its crudity. 'Nothing isn't an animal. An animal isn't nothing. That means that an animal is something.' Why, it makes sense!"

She paused in amazement at her own reasoning.

PROFESSOR LAKEMAN became aroused. Despite his conservative nature in matters of science, he was a real whirlwind at home. Somehow Miss Elsmere reminded him of home. Her sharp, choppy voice grated on his nerves and shattered his composure. The Professor was fond of his nerves. Anything that grated on them had him to deal with. Composure had always been his long suit. Rage seethed within him as it was shattered.

Without pausing to reason out his action, he reached under the hat. Grasping the Metacat firmly, he strode down the room. With a gesture of finality, as if his action would settle all problems, he deposited the creature in the arms of the Helpless Creatures Society.

It was something like tossing a dilemma into the lap of Destiny.

Miss Elsmere screeched. Her shrill voice ascended in a rising keen that quavered with emotion.

The Metacat ascended at the same time in a side-wise leap that carried it to the middle of the room. There it huddled, shivering in indecision.

Miss Elsmere's companion recovered after a short gasp and concentrated her gaze on the creature.

"You cruel beasts!" she gasped. "What have you done to that poor cat? Here, Kitty, Kitty."

She reached down as if to pet the creature. It made a friendly little hop toward her and she jerked back into her chair.

"What—what is it?" she asked.

Miss Elsmere had regained control of her emotions. "Why, it's just a dear lit-

tle helpless creature—um—creatures," she said. "We must help it, we must feed—ah!"

She paused and turned on the men with sudden violence.

"You men! Dabbling with Nature and things! Professors in our educational institutions! I'm ashamed that you should condone such proceedings! Wait until our National Chapter hears of this! What are you waiting for? Fix it! Fix it at once!"

Gregg felt that it was time for him to do something. His careless words to Dick Davis the reporter had brought the scientists to his laboratory. It was up to him to save them from scandal at the hands of the reform element present.

"Miss Elsmere," he said, "I alone am responsible. I alone developed it. These gentlemen merely dropped in to observe it."

"Well they can help you undevelop it before they drop out again! There should be enough brains among you! And see that you don't hurt it. I am going to stay right here. If I hear one cry out of it—" She paused in uncertainty as if trying to visualize a headless 'cry'. "That is—ah— Be sure you don't hurt it. You may begin at once."

The men received this command with indignant gasps and rumbles of protest. Their attitude changed to one of meek acceptance under Miss Elsmere's unrelenting gaze. They were well aware of her gossip standing in the community.

Gregg added his own unhappy glance to the barrage of hateful looks which were showered on the Metacat.

The creature capered about impudently as if it had heard and understood and was daring them to harm it. It remained in the company of the ladies when the men adjourned to the laboratory and tank room to decide on a mode of action.

III.

GREGG and Larry soon found that they were but spectators as a pyrotechnical display of intellect filled the room. The scientists seized the problem in a truly scientific manner, each grasping on at his own viewpoint and starting out on his own line of thought.

"We must start with what we have," Tellum stated grandiloquently. "Two hind quarters are evident; two elongated body segments extending from them to the place where the respective fore-quarters should be, are likewise evident. Seeking the source of the murmur, or purr, which issues from the interior, we will probably find a type of lung structure. An X-ray would undoubtedly show us two hearts beating as one at each side of the meridian of jointure situated in the dorsal hump."

"We must place a head in the middle, which is undoubtedly the center of nervous activity," said Lakeman. "All we need is a head. Gregg should be able to provide one by his cellular development."

"If he would provide two fore-quarters, with their respective heads," continued Tellum, "we could find the dividing line, the point of union, in the Metacat. Then by a skillful operation—"

"Bah!" blared Butler, the biochemist. "What are you going to use, a bread-knife or an ax? You're not in your own lab, remember. You heard grandma, didn't you? How are you going to cut along the dotted line without hurting the creature? We must—"

"Rebuild along the line of Gregory's experiment," roared Lakeman. "Starting with a head cell and building backward."

"Exactly!" Butler nodded. "That will get us a head."

"I insist that we need two in order to graft," Tellum persisted. "Grafting is my specialty!"

"If we could only put this on a re-

search basis," pondered Dr. Dee, somehow correlating Tellum's talk with his own thoughts.

"Or establish a new foundation," Dr. Donough agreed.

"Baldertosh!" Gabman snorted. "Time is the element that must be considered in this instance. Despite its long-lasting qualities and eternal volume, we find ourselves with a lack of it. The physical conditions of the problem, as proposed by the ladies in the anteroom, require immediate action. We haven't time for endowments and foundations. I suggested that the solution is in dissolution. Get rid of the nameless thing once and for all."

"And how," queried Dee, "would you accomplish that?"

"In many ways," the physicist said. "By chemical, acid, or fire."

"The ladies wouldn't consent," Donough commented.

"Or by ultra-short sound waves," continued Gabman. "We might produce a more spectacular disintegration."

"Sort of killing two cats with one tone?" asked Larry innocently.

The scientists glared, silence reigned, and Gregg decided to express his opinion. "I am opposed, gentlemen, to the sudden application of any such drastic methods as you are now discussing. The Metacat is, so to speak, my brainchild. I believe it deserves a chance to enjoy the world about it. That point should enter into the problem."

"We are all acting too much like the Metacat," said Larry. "Remember how it followed natural instincts, tried to start at both ends, and couldn't get anywhere? It seems to me that you gentlemen have allowed instinct to lead you into an attack on the wrong problem. We should do something along the line suggested by Dr. Tellum."

"Graft?" the biologist queried hopefully.

"Yeh," smiled Larry. "In a sense. Though perhaps another word would

be better. We all know that Miss Elsmere is going to demand full satisfaction. Almost any line of experimentation will goad her finer sensibilities, if she has any."

"Your idea?" asked Dr. Dee.

"Professor Gabman could conduct it. His talk of dissolution suggested it. I'll explain."

Larry told them his plan in low tones, making sure that the ladies could not hear.

The others agreed that his scheme was worth trying.

THEY THREW themselves into the work of preparation. Shelves, cabinets, and boxes from top shelves disgorged a mass of equipment. Gregg had experimented at many things electrical, physical and chemical, and had saved most of the apparatus.

Larry and Dr. Gabman engineered the project, building around the table in the outer storeroom a machine that was amazing in its complications.

There were transformers, rheostats, Tesla coils and tuning coils; test tubes, thistle tubes, condensers, screens and ring-stands. A rotary spark gap on the table flickered behind a large square jar of glutinous agar-agar. Mercury-arc lights and neon tubes shed their glow from upright brackets.

Miss Elsmere, able to see part of the proceedings through the doorway, grumbled impatiently. Gregg reassured the ladies.

Dr. Gabman busied himself at regulating the position of a large, adjustable-focus, concave mirror, which was seated in a position of prominence behind an open-backed box on the table. Larry assisted, measuring distances on the floor and table. He drew the window shades down, leaving the room in semi-darkness.

Finally all was in readiness. A maze of cables and wires, leads from the various circuits, found a common center at

a control board where needles flicked over calibrated dials.

Gregg ushered the ladies into the room, to chairs situated a short distance in front of the equipment.

The scientists made a final trip to the tank room, to emerge a moment later wearing rubber aprons and gloves. Each had his head swathed in a turbanlike wrapping of toweling. Each had his features set in a truly professional attitude.

Larry extinguished the ceiling lights so that the room was lighted by the mercury-arcs alone. He then picked up the Metacat which had followed the ladies into the laboratory. He fitted the creature's four paws into four spaced loops on a short pine board.

The creature, upright but anchored, rumbled in a protesting purr. It soon ceased its futile struggling and posed as immobile as a fur-covered statue. Larry placed the creature and its portable base on open-backed box in front of the mirror.

The creature, the box, and the mirror were situated in the midst of the paraphernalia. The intricate mass of scientific apparatus, at both sides and behind, appeared to the ladies as some complicated machine.

Dr. Dee, equipped with a pointer, stood at one side of the pseudo-machine. His endowment-raising propensities flashed into play as he began to speak.

"Ladies, you are about to witness one of the most amazing experiments ever attempted by science. I must warn you that the result cannot be definitely predicted. In the interests of your Society we have condensed into the work of a few minutes, an undertaking that would ordinarily take days. This was accomplished by the use of the intermittent photo-electrical method in conjunction with variable dia-chemical components.

"Physical surroundings and lighting are of the greatest importance in a work of this nature. The shades are drawn,

the lights dimmed, in order that only the necessary light may enter—cosmic light, that is. When dealing with the psycho-physical properties of life, as we are in this instance, we deal with invisible light far beyond the wave lengths apparent to the eye.

"You will notice the large mirror situated behind the creature on the pedestal. With that we will concentrate the invisible radiations on the creature and initiate the metabolism which will eventually give it a head-ds."

Dr. Dee signaled to Gabman with a wave of the pointer. The physicist snapped a switch. The Metacat stood out in a spot of light like the center of attraction at a floor-show.

"Will it hurt it?" Miss Elsmere questioned.

"Not at all, not at all," Dr. Dee explained. "The invisible light which will soon be focused on the creature will cause it no worse effects than the visible light in which it now stands. If you will remain seated and focus your attention on the creature here, you will be able to see the whole change."

At a signal from Dee, Dr. Donough applied a light to a Bunsen burner under a distilling flask full of bluish liquid.

"Pay no attention to any other phenomenon," Dr. Dee continued. "While all these things are essential to the experiment they are but common laboratory phenomenon. They are not worthy of your attention. Concentrate your gaze on the Metacat. Retain your seats above all things. You are insulated there from the forces we will be working with. You will notice that we protect ourselves with shielding gloves."

HE SIGNALLED to Gabman and the mercury-arcs were extinguished, just as the liquid in the flask began to bubble. A single neon tube imparted a crimson glow to the assembled glassware. A soft whine sounded as an electric motor started in the tank room. The wail of

an electric generator slowly increased in volume. The spot of light on the Metacat gradually grew dimmer.

The white head-pieces of the scientists stood out in the faint light as the men adjusted equipment about the table. Gregg stepped forward and changed the flow in the condenser as the distilled liquid began an irritating drip onto a thin piece of metal at the edge of the sink.

Larry, the only one without a turban, was an indistinct blob in the semi-darkness as he moved about behind the scientists.

Gregg moved back to stand near the ladies.

The Metacat which had shuddered a little at the first wail of the generator, returned to its state of placid immobility.

The spot of light vanished. The wail of the generator increased to a high-pitched moaning that flooded the room with its vibration. The neon glow faded out. The rotary spark gap whirred into snapping, crackling, sparkling life behind the jar of agar-agar, slashing the darkness with weird spatterings of light.

Somewhere amid the equipment a loud-speaker squawked with the intermittent oscillation of a vacuum cleaner.

Only the flicker of the spark gap and the blue flame of the gas burner lighted the room.

A new sound forced itself onto the percipience of the awed audience. At first but the whisper of a breeze, it pinched itself into a shrill that pierced the nerves like the wail of a zombie in the jungle night.

The burner flame popped into oblivion. The rotary gap whirled sparklessly as the juice was cut off. All of the flood of sound concentrated in a final high-pitched roar. A slash of electric flame snapped from the ball atop the Tesla coil as if born of the sound.

Total darkness closed in on the scene with a deafening crash.

In a few seconds of swift action, while

the darkness lasted, Larry worked with skilled precision.

The Metacat was suddenly visible, like a wraith in the night. It jerked and struggled at the bonds about its legs. Clearly visible for a fraction of a second, it vanished into darkness, only to reappear a moment later.

Gabman presided with a violence at the controls. He manipulated switches

and buttons with the wild, confusing touch of a pianistic protégé in the throes of an interpretive composition. The room was flooded with a kaleidoscopic jumble of light and sound effects.

The ladies gasped as they watched the Metacat change in appearance with each appearance. In the changing light they did not see Larry as he slowly pulled down the small roller shade to close



Miss Elsmere, self-appointed Protector of Helpless Animals, backed up with a shriek. "What—what is it?" she demanded shakily.

the back of the open-backed box.

The Metacat was changing.

First its ankles and their bindings disappeared. The remainder of the legs vanished as the creature vanished and reappeared with increasing rapidity. Soon only the back and tails remained.

Both ladies gasped violently as the last of the twin tails disappeared from view with a final impudent flourish.

Gregg signaled to Gabman.

The physicist rounded off the performance with an artistic furbelow of sound. None but Gregg saw Larry return from the dark tank room. The ceiling lights came on, in peaceful contrast to the flashing turmoil of the moment previous.

IV.

THE BOARD to which the Metacat had been strapped a moment previous lay on the box. The loops of cord were slack and untenanted. The Metacat was gone without a trace. The scientists stood silently about. Their turbaned heads were bowed as if in contemplation of a great work that had failed. Dr. Dee seemed about to burst into tears.

"We should never have done it," he sobbed sadly. "Our methods were too drastic. They should have been more carefully thought out. We might have worked for years, studying the creature. Now—it is gone."

Dr. Dee's voice broke with emotion.

"I hope you have learned your lesson," Miss Elsmere snapped nervously edging toward the door as if fearful that the apparatus would again come to life. "No one can long succeed against the hidden powers of Nature."

Her companion followed into the outer office, with repeated nervous glances over her shoulder. All her enthusiasm for investigating scientific matters had vanished.

Miss Elsmere paused upon reaching the security of the outer door.

"Our Society will be watching you

from now on, Mr. Allan," she gave a final warning. "A word to the wise is sufficient!"

Gregg locked the door and returned to the inner room. He found the scientists discussing the susceptibility of certain types of females to legerdemain and phenomenon.

Larry was preparing to give the Metacat an injection of food solution.

"By all rights," he commented, "it should have a chicken dinner after hanging by its feet that long."

Gregg shook his head doubting that the whole affair could have happened. "They never would have fallen for that old 'flowers in the vase' stunt," he commented, "without the accompanying confusion of light and sound."

The Metacat arched itself as proudly as a soldier who stumbles into recognition and suddenly finds himself honored and feted by the decorating committee. It strutted for a moment as its legs suddenly worked in unison. This awareness of a developing awareness gave the scientists pause. Their combined intellect could not logically locate the seat of intelligence in such a double-ended entity.

Their incipient discussion was cut short.

The Metacat began to fade realistically as if mocking them for causing it to vanish artificially. It staggered weakly. The tips of its tails vanished in the middle of languorous waves.

The scientists gasped as the long appendages shimmered, wavered and were gone.

GREGG ACTED swiftly.

"Primary intercellular disintegration has set in," he gasped. "Larry! The hydrocellulopsychrometer! At once!"

Seizing the unvanished remainder of the Metacat, he hurriedly placed it in an individual glass cell full of food solution. This tank, unlike the others in the room,

was fitted with a number of electrodes connected to a control panel.

Larry worked with the precision of a skilled laboratory assistant. He lowered a curious metal hemisphere over the creature as it came to rest on the bottom of the tank. A myriad of wires and tubes extended through the top of the hemisphere which was about twenty inches in diameter. These merged into a cable that extended to the control apparatus.

Gregg worked hurriedly, making minute adjustments of the controls.

The scientists did not recover from their astonishment at the semi-vanishing of the Metacat until Professor Lakeman spoke.

"Your process, Gregory? How do you explain it? Do you expect to stop the disintegration?"

"Certainly, professor," Gregg responded. "It is really quite simple. I realized the cause as soon as the creature began to disappear. Judging from its mode of development, it probably has a tracheal system of alimentation. Thus the food solution, containing the absolute essentials for growth, is able to penetrate to the individual cells and organs of the body.

"For the last forty-eight hours the creature has been out of the solution. It was undoubtedly kept alive by our periodical injections through the epidermis. These injections in the central body region have maintained life by supplying the central body organs. If my theory is correct, the cells in the extremities have been without food since the creature was removed from this tank. They would naturally die without food."

"I can understand that," said Gab-man. "But they shouldn't vanish like nothing sailing away on the breeze. What of Thanksgiving if dead turkeys started to vanish? What of murder mysteries if corpses really faded away into the night?"

"You miss the point, Doctor," Gregg continued. "When dealing with Life we cannot for a moment forget the survival of the fittest. The efficiency of the life force sees that very little goes to waste. Body cells break down and are replaced without appreciable loss to the organism.

"In the instance at hand, the survival value of the creature's structure is centered about the basic tendency of the individual cells to absorb food from the medium about them."

"Do you contend that the tails vanished because of internal absorption?" questioned Dr. Tellum.

"That's logical," Dr. Baker commented. "The theory, not the vanishing."

Gregg rounded off the theory. "The cells nearest the food supply—in this case the point of injection—being the strongest and not satiated, make up for the deficiency by absorbing the more distant cells, which are correspondingly weaker."

"Sort of a cat eat cat policy," commented Larry wryly.

"It seems to me," stated Dr. Dee, "that the creature's whole life has been one of absorption. We should adopt it as a living example of directed purpose. A Foundation for the Contemplation of Absorption. I'm sure I could arrange a sponsor."

"After all," Larry smiled, "it is merely absorbed in absorbing food. It practically grew into it, if you will remember. The better question is—did the food grow into the Metacat or the Metacat into the food?"

"How long will the process take, Gregory?" questioned Dr. Donough, who had no intention of missing his four o'clock tea.

The question brought all of the men back to their sense of time and duty. The group broke up as Gregg predicted slow redevelopment for the Metacat.

GREGG WAS never one to mess around. Inventiveness emanated from him like heat from a thermite weld. It was a little thing for him to do little things in a big way. He threw himself into his work, heart, soul and bootstraps. He was thrown out again by a proud feeling of self-satisfaction and well-being, to find himself surrounded by inventions, equipment, and apparatuses. All were necessary for the speedy completion of the work to which he had set himself.

Larry had a hand in everything, acting as first and only assistant. He worked like an automaton and talked twice as much. Working with an expertness found only in laboratory assistants and mind readers, he was always at hand with the things needed to bring Gregg's ideas into form.

Four days later the scientists arrived at the appointed hour.

Dr. Donough brought his usual bored expression with him, and Gabman had a psychical, far-away gleam in his eye. The others did not seem as skeptical as they had on their previous visit.

Gregg addressed them.

"Gentlemen, we have a little surprise for you. Not only have we speeded up the old process, but by using a head cell from the nose of the house cat, we have initiated a new development. The process should be finished in a few moments."

"How do things look?" questioned Tellum.

"That is the obstacle," Gregg explained. "Nature prefers to keep her processes in the dark. I have not yet devised a method for observing the development beneath the hemispheres. There seems to be an elemental breakdown when we try to get any light on the subject. The completed organism is unaffected by light. We are able to judge from past experience the time necessary for complete development."

Gregory looked at his watch and

moved to the controls.

"All right, Larry," he directed. "Let's see what we have this time."

There were two hemispheres on the bottom of the tank. Larry lifted one of them from the tank by means of the cable-conduit extending from the top. Extending his sleeve-rolled arm into the solution, he lifted out a dark, hairy object and placed it on the control table.

The object shaking the solution from its fur was the Metacat, as it was, in all its double-ended, two-tailed, purring dignity. It humped around the tabletop in a mincing fashion, just as a rejuvenated, reconditioned Metacat might be expected to. It held the attention of the scientists while Larry removed the other hemisphere and another furry, dripping object from the tank.

The murmur of scientific comments ceased.

Silence shattered the laboratory like the mating call of a chimney-brick winging through the void.

The scientists stood about with absolute disbelief written on their features.

One might have heard a gumdrop.

Eight scholarly lower jaws dropped in open-faced amazement.

Accustomed as all of them were to expecting the unexpected, they could not believe the thing before them. The Metacat no longer held their attention.

The companion creature, shaking itself, had become the center of attraction. Its sleek lines and color placed it in the same category as the Metacat as far as cellular parentage could be judged. There the resemblance ended. The long body of the new creature, in distinct contradistinction to the Metacat, possessed at each end the familiar facial features of a sphynxlike Siamese. Tails were noticeably lacking, as the body extending back from the heads of the opposite ends met in a central ruffle of opposed fur. The four legs were forelegs.

The only appreciable difference in the

heads was in the color of the ears. The Mendelian characteristics of some ancient line of alley-cats had intruded themselves into Gregg's development. One pair of gray ears was streaked with white, the other with dark, blotchy lines.

V.

LARRY ALONE seemed unaffected by the gravity of the situation. "That thing ought to get some place," he remarked. "That is, if it uses its head."

The others ignored him.

"Your process is faulty, Gregory," Professor Lakeman reasoned. "Your theory doesn't go far enough. When you reason that each cell contains within itself the latent possibility of development into a complete organism, you only meet Nature halfway. You forget that it takes two to propagate a race. Your method fails each time by only developing half of the possibilities—half of a pair of creatures, in each instance."

"The doubling back is what bothers me," said Gregg. "Your idea fails to account for that. Why should development, starting at the nose as in this instance, build up to a halfway point and reverse itself?"

"Your genes are reversing, your chromosomes are hay-wire. You should check up on your chromospores," blurted Butler, the biochemist.

"Maybe you better see your doctor, Gregg," suggested Larry.

"It's a beautiful creature," commented Dr. Dee. "We *must* show it to the Board of Regents. I'm certain they would establish a foundation for experimenting with it."

"Oh, yeah?" questioned a shrill voice. "Not on this cat!"

"I don't think experimentation is advisable," stated another voice calmly. "But, of course, if you insist——"

"Did you hear that?" Gregg gasped and teetered a little from the shock. He wondered vaguely if the beer he had

had for lunch was in any way responsible.

"It . . . it . . . they talk!" blurted Professor Lakeman.

"Impossible! Illogical! It can't talk!" Tellum blared. "How can a creature existing by a tracheal system of respiration and alimentation have a lung structure and the necessary vocal organs? What of the larynx and pharynx and syrinx, the bronchi and the glottis? Can a simple feline possess these in a form found only in the higher mammals?"

"No! No! No—no! Nope!" Gab-man, the physicist, interrupted violently. "I don't believe it! It didn't say a word!"

"The ultimate attainment in the evolutionary process," reasoned Lakeman. "Thoughtful speech indicates that the creature has intelligence and the ability to express ideas. You have carried Nature on past her stopping place, Gregory, leading her to new heights. Expression is the peak of development."

"Talk's cheap," commented Larry. "If speech were wisdom, sport-casters would be prophets supreme."

"The question arises," said Butler enigmatically, "whether the creature talks because it is intelligent, or whether it is intelligent because it talks. An electrical transcriber talks after a fashion. You couldn't call it intelligent because it hasn't a thought sorter which is found only in an educated brain."

"If you call a thought sorter intelligent because it sorts thoughts," questioned the White-eared head, "would you call a soup sifter intelligent because it sifts soup? Both are used, as you are aware, in the critical separation of the material at hand. Not that it really matters, but I just thought I should ask."

"First time I ever heard a cat talk," commented Donough, his boredom shaken.

"Perhaps none of the others had anything to say," piped White-ears.

"Shut it up! Take it away! Get rid of it!" snapped the Dark-eared head.

The two-ended creature seemed trying to pull itself apart. The legs at the opposite extremities worked pitifully against each other in a rather hopeless tug-o'-war. As a result, the creature remained in the same position. White-ears was buckled down to a slow, steady pull, head lowered. Dark-ears jerked and shook its head savagely.

THE METACAT in its wandering about the table-top bumped into the new creature and attempted to rub up an acquaintance. It became dejected when it found itself completely ignored by the new creature, and hopped to one side where it remained quietly in a state of shivering sadness.

"Shut what up?" questioned Larry.

"That voice behind me," snapped Dark-ears. "I don't like it! I don't like anything I can't see! It's irritating!"

"Make the best of what you have," said White-ears philosophically. "I don't like to have you grumbling back there, but I wouldn't be crude enough to say so."

Dark-ears lowered its head and gnashed its teeth. "Shut it up! Take it out and drown it!"

"We'll have to take you both out then," said Larry. "It's part of you. You should be satisfied. Not every cat can talk."

"That's a broad statement," argued Dark-ears. "Every cat that I know does talk. But how would you like to have a sage where there should be a wag?"

"That cat beside you doesn't say anything," said Larry, pointing to the Metacat.

Dark-ears focused its gaze on the two-tailed creature.

White-ears turned at the same time.

The two heads paused a moment in contemplation of each other. A second later they were snapping and snarling

at each other with all cultural instincts submerged. Straining all their feline suppleness to the utmost, the heads attempted to get at each other's throats. Their bodily limitations left an unlessering space between their noses. Any attempt by either end to get closer was accompanied by a similar action on the part of the opposite.

Larry emulated a sport's announcer: "They glower at each other, moving about the ring! Darkey feints with his left! Whitey feints with his right! They swing wide! The right end moves around to pull the left end out of play! They can't seem to get together! They both feint! What is this, a petting party?"

"Bah!" roared Lakeman, dropping his hat over the ring. "What are you going to do with them, Gregory?"

"I certainly can't produce them as household pets," said Gregg. "The ice-men would go on strike."

"They're priceless," Dr. Dee interposed. "Absolutely priceless! What a scientific drawing card! We could take in thousands in subscriptions. The public would be *mad* about them."

"Or *at us*," commented Gregg. "Probably the latter. Did you ever wonder how it would feel to be tarred and feathered for practicing witchcraft? Or drawn and quartered for sorcery and malpractice? The best we can do is to keep this quiet. Public sentiment is seldom an intelligent phenomenon."

The others nodded as they visualized Science burned at the stake of Public Opinion.

"We must put an end to it at once!" barked Donough, thoroughly aroused.

"The logical thing is to put two ends to it," said Larry. "We have all the parts."

"Admirable," agreed Tellum with enthusiasm, "I'll order my instruments."

"One moment," commanded Gregg. "I have the process already planned. The operation can be performed quite

quickly and quietly by my method. We will need X-rays of both this new creature and the Metacat. That will give us something to work on."

"We should have a picture of it as it is," said Dr. Dee sadly.

"Never!" grumbled Gabman. "What if it became public? They'd make us the parties at a ham-stringing party."

LARRY MOVED a portable X-ray machine out of a corner and approached Lakeman's hat. That broad-brimmed piece of apparel was emitting curses, ejaculations, and unbrotherly phrases as it moved about on the table. The embattled extremities had slowed their altercation down to catty remarks.

"I don't see how you learned so much," said Larry as he removed the felt cover from the creature.

"You'd learn too, if you had a continuous jabbering in your head," wailed Dark-ears, ending in a sarcastic mimicry: "A good good evening ladies and —the nation between the stations—send a dollar—see the new pink pills—in action—you can—swing it sister—in easy installments—CQDX."

"My golly!" exclaimed Gabman with interest. "They must be receptive on every band!"

"What beats the band," muttered Larry, "is where they learned the curses. You haven't been hanging any pictures lately, have you, Gregg?"

"If you are interested," uttered White-ears, "I might inform you that the lawyers on the lower floor spent the whole morning discussing a case which they lost yesterday. Otherwise I wouldn't mention it."

Larry placed the Metacat in position for the X-ray and held it while Gregg adjusted the plate and the exposure switch.

The others watched Gregg. None of them saw Dark-ears turn for a short whispered conference with White-ears.

The opposed personalities of the

creature had found a point of agreement. White-ears nodded. Neither end desired to become the subject of an experiment.

Larry caught sight of the creature as it dropped noiselessly from the table and slipped stealthily under the nearest tank stand. The creature's intention was apparent in its sneaking, side-wise glance at the men.

Larry dove to catch it.

His fingers half-closed on White-ear's furred head, only to have it slip from his grasp with a bobbled jerk.

"Yah!" cried Dark-ears shrilly. "We're going places."

The creature darted the length of the room, legs padding in awkward unison as White-ears ran in reverse.

"We wouldn't be doing this," called White-ears reflectively, "were not self-preservation the first law of Nature."

Dark-ears had located the open rear window. This overlooked an adjacent roof-top five feet below. The creature paused for a moment on the ledge.

"Drop out and see us sometime," Dark-ears snapped as a parting remark.

Gregg stumbled over Larry in an attempt to get to the creature. They both reached the window in time to see the double-ended ball of fur disappear into the stair-well of the building below.

"We're lost," cried Dee. "Someone will find it! Miss Elsmere will hear of it! We'd better pack our portfolios and vanish from our haunts."

"All is not lost," Larry mocked. "Come on, stout hearts! To the chase! Away!" He dropped from the window and darted across the roof.

GREGG PAUSED only long enough to drop the Metacat into the solution tank. He then followed in Larry's wake with Lakeman, Butler, Tellum, and Gabman following close behind. The Research Department, as represented by Dee and Donough, went into action in a more leisurely and dignified manner. The latter crossed the roof and de-

scended the stairway to the top floor of the building. The men ahead were approaching a door at the far end of the corridor. Larry was not in sight.

Dee and Donough arrived at the group just as the door opened a bit in response to Gregg's insistent knocking. The aperture was blocked by a bulky female who seemed none too pleased at being disturbed.

"And why," questioned lady, "didn't you just borrow a fire-ax and knock the door down?"

"Pardon us, please, madam," said Gregg. "But have you seen a cat?"

"Or anything that looks like a cat?" added Lakeman.

"Have I seen a cat?" pondered the woman gravely. "Or anything that looks like a cat? Well! Well! That is a question now, isn't it? 'As I was going to London Fair I saw a cat a-walking.' Is that the way it goes?"

"Madam——" interposed Gabman futilely.

"Of course there are cats and cats," continued the lady. "There are long cats, short cats, little cats, big cats, thin cats, fat cats, sick cats and well cats. But when you start asking for things that look like a cat, you are narrowing the field. If you can tell me just what kind of cat this thing looks like, maybe I can help you. It must be gold-plated to have a bunch of men running around and knocking on doors to look for it."

"No," Lakeman explained, "it's just a cat. A Siamese, I would say, with white—that is—dark ears. A rather confused appearing creature."

"It must be confusing if it has white—that is—dark ears," said the lady. "We have lots of confused looking creatures here, though. Step right in. You may find one that will do."

She opened the door fully and sidled back to allow the men to enter.

A powerful atmosphere of medicinals, straw, and animals, rushed at them and caused them to hesitate in indecision.

"Whew!" Dr. Donough sniffed in disgust. "A pet hospital!"

"What'd you expect, a lingerie factory?" questioned the lady contemptuously. "Not that there aren't cats in lingerie, as well as in pet hospitals. Or do you gallivant through life, knocking upon any likely door you happen to see?"

Gregg made a hurried inspection of the rooms. Row after row of tiered, wire-screened cages filled almost every available inch of space. Most of them were occupied. The variety ranged from Angoras to Zibets in the cat line, but the runaway was not there.

"Thank you, madam, we must be going," Gregg explained as he hurried from the room. The others followed.

"You must be going crazy, if you ask me," the lady responded viciously. "Just drop in *any* time."

The door slammed with a violence.

"We will do better, I believe," reasoned Gregg, "if we look for Larry. He may have found it by this time."

Gregg hurried down the stairs with the men strung out single file behind him. He broke into a run as he emerged from the building just in time to see Larry sprinting into an alley-way across the street. The men crossed the thoroughfare in the fashion of a bucket-brigade headed for a fire.

VI.

THE CREATURE was heading toward the factory district with its maze of alleys and short, narrow streets. It was late afternoon and not many people were about. Gregory's laboratory was located in the older part of the city where small commercial enterprises mushroomed through their brief existences in antiquated buildings. There was little chance of anyone seeing the creature. The workers of the district never looked at anything but their watches or the time-clocks.

Gregg out-distanced the others and was in time to note the direction taken by Larry at the opposite end of the block. The distance between the runners increased as they crossed street after alley on the trail of Larry and the elusive creature.

Three pedestrians swung in behind Dee and Donough as they crossed a busy intersection. They were followed at other junctions by others who were interested in the pursuit of the unusual. None of them visualized anything less than beer and sandwiches at the end of the chase.

A blue-coated officer dropped into the race and caught up with Butler.

"What—are—you—all—running—for?" he puffed laboriously under the exertion of trotting his two-hundred-odd pounds.

Butler turned his head slightly, but did not slacken his pace. The brass-buttoned uniform brought an angry gleam to his eye. His last encounter with a uniform had been an unpleasant affair resulting in a ticket for over-parking. Butler decided to be technical.

"I'm just—trying to—maintain and—slightly increase—my velocity—," he disserted between breaths, "so that—over a—period of time—I may—by gradually—decreasing the—intervening—space attain—position along—side of—the fellow—up ahead."

The officer dropped back in disgust and exhaustion and came to a jerky stop. He turned and blocked those behind with outspread arms.

"Halt!" he rasped in a breathless half-whisper. "Halt!"

The straggling rear guard consisted of Dee, Donough, and a group of strangers. They jerked to a stop and crowded around the officer as the chase and Butler disappeared from view.

"An' what might the gang of *yuh* he running your fool heads off for?" panted the Law.

The whole group stood uncertain and shuffling. They felt sheepish and silly, sheepish looks spread across their respective features. Any of them would have gladly traded places with any fleece-bearing ruminant in fields afar. Their minds registered a uniform distaste for run-sheep-run or follow-the-leader as they milled about the uniform.

The officer singled out Dr. Dee. "Speak up," he commanded. "You was in the lead. What was you chasin'?"

"Why, ah, we were chasing a cat," explained Dee, inwardly cursing his inherent honesty.

A ripple of muffled laughter tittered through the group.

"A *what*?" queried the officer dubiously. "Get funny with me fellah an' you'll land in the clink."

"A cat," repeated Dr. Dee. "It escaped and we are trying to recapture it."

"A wild cat, eh?"

"No. Well, that is—not exactly." Dee paused, hesitating to explain.

"Well, if it's not exactly wild," growled the officer, "it must be partly wild. In which case I can take you under Section 1768 of the Political Code which prohibits the ownin' of animals, *res naturae*, meanin' wild, in the city limits."

"But," objected Dee, "I don't own it any more than you do. I wouldn't think of owning it. In fact, I wash my hands of it."

"Why was you chasin' it then?" insisted the officer.

"Why—ah—to help the others catch it."

The officer turned a livid purple and wiped sweat from his brow.

"YAH!" he roared. "Scram! All of *yuh*, before I run *yuh* in!"

He growled disgustedly to himself as the group dispersed, shaking his head in sad contemplation, remembering the beer he had left to join the chase.

LARRY, RACING, running, panting, was getting his fill of everything pertaining to cats. He inwardly cursed Gregg and the whole cellular process of synthetic evolution. He thought of dropping the chase and leaving the creature to face the world alone. Thoughts of possible consequences spurred him on.

The creature was holding its lead but failing to gain.

White-ears indulged in a running monologue, interspersed with snatches of popular tunes.

"You better buy a bike," it shouted. "Two heads are better than one; four legs better than two."

Larry was too winded to respond. The whole affair reminded him of his boyhood days when he had run barefoot down the road behind the neighbor's Rambler. The neighbor kids leaning over the back seat had yelled aspersions and sarcastic encouragement just as White-ears was doing.

"Step on it! Shake a leg and get a lift! Use flying Q and put wings on your feet! We leaders use anti-knocky, super-unparalleled! Use ethyl-lead to shake the lead and let you take the lead! Remember, 'You Can't Have Everything,'" the creature ended in a tuneful lyric.

Larry wanted to tell the creature that it was carrying a good tune too far, but he was too winded. He was so tired that he could hardly lift his feet when he realized that the creature was tiring. He looked back hopefully, but neither Gregg nor the other men were in sight. Lost in the maze of cross-streets and alleys, they had given up the chase.

Dark-ears was wavering and choosing his route haphazardly. For some reason the natural feline instinct for gaining altitude had not come to the fore. The flight retained its two-dimensional nature until Dark-ears chose a blind alley that ended in a brick court with high, unbroken walls. There the flight ended

as the creature came to rest in a box, atop a pile of old crates.

Dark-ears whirled and stuck his head from the container, relegating White-ears to the darkness and an atmosphere redolent of laundry soap.

Larry rested against one wall of the narrow alley, blocking the entrance to the court. "Well," he remarked, "I hope you are satisfied. Where did all your running get you? Scuttling around town like a two-headed catawampus! You endogenous offspring of a physico-chemical process! I've a notion to wring your necks!"

Dark-ears lay quietly, glassy eyes fixed on Larry through narrowly slitted lids.

"You should know," Larry continued, "that none of us are going to do anything to hurt you. What if you're not built for running? What if this exertion is the end of you?"

"Which end?" queried Dark-ears sarcastically. "That's the problem."

White-ears jerked around indignantly. "I feel weak," it said. "There's too much problem here and not enough solution. Oh, to be again in our food! I feel faint and kind of fady."

"Go catch yourself a rat," snarled Dark-ears.

"You had better come along at once," said Larry, remembering the Metacat. "You might fade away completely."

"We're leading a dog's life anyway," snapped Dark-ears.

Larry sensed a presence and turned to find a wizened old man in a gray suit and bifocal glasses standing beside him.

The stranger nodded a greeting and rubbed his hands together speculatively. "Mar-ve-lus!" he exclaimed. "Young men, if you can doing that on the stage your fortune is made."

"What are you talking about?" Larry asked.

"Ventri-oke-oke—trowing it the voice. It's all in the rage. You got

it the best I'm ever hearing. You'll heving to develop it a little more repartee. And trowing away thet scraggly cat for a sensashional dummy, like Charlie Mac-arty."

"Who's scraggly, you superannuated old fossil?" queried Dark-ears menacingly. "If you had half the brains of a cat you'd still be a nitwit!"

"Ach!" groaned the stranger. "Here I am prectically making it to you an offer of two hundred dollars a week and you get sarcasm! Bah!"

"Yah!" cried Dark-ears. "Scram."

Larry acted the part and gave the stranger a menacing look.

"All right! All right!" The stranger turned away. "Remember! You're making it the mistake of a lifetime."

WITH THE STRANGER out of sight Larry turned to the creature. "I've had enough of your foolishness," he growled. "I'm not going to waste any more time. There's only one place in town where *you* can get a decent meal. If you want it you'll have to come along now. Otherwise I'll leave you to your own ends."

The creature submitted meekly as Larry retrieved it from the pile of crates. Dark-ears made no complaint as it found itself concealed inside Larry's shirt.

"We wouldn't be doing this," said White-ears reflectively, "were not self-preservation the first law of Nature."

Larry was thankful that the chase had taken place in such a sparsely populated section of the city. There was some chance of getting back to the laboratory unobserved. He warned Dark-ears. "One yap out of you and it's under a freight-truck for both of you."

The return trip was uneventful until he reached the last block.

The chase was over. The laboratory building was in sight. Larry saw Gregg and Dr. Dee at the window. In a few minutes he would have the creature safely back. The double-entities with their double-identities would vanish in the rebuilding process Gregg had planned.

Larry's musing was cut short as he found himself confronted by Joe, the familiar colored news-boy. There was no chance to avoid the meeting.

"Lo, Mistah Larry. Like yo' papah this evenin'?" the fellow asked.

"Not now, Joe. I'm busy."

The fellow peered at Larry's shirt front, where the White-eared head protruded sleepily.

"What yo got theah, Mistah Larry? A cat, huh?"

Larry started to nod and pass, but White-ears spoke with an ear-wide grin, "What does it look like? A baboon?"

"Huh!" grunted Joe, turning slightly pale. "What yo' say, Mistah Larry?"

"I didn't say a word, Joe," Larry responded. "You must be hearing things."

"Ah thought ah heard somethin', swear ah did," complained Joe, looking about doubtfully.

"I didn't say a word, Joe," mimicked White-ears. "You must be hearing things."

"Oh, my! Oh, my! Oh, my!" Joe wailed as he bleached out to a pretty putty color. "That bath-tub gin! That bath-tub gin!"

Larry slapped White-ears half-heartedly as the colored boy vanished around the corner, leaving a trail of newspapers scattered in his wake.

Don't miss

"HUNGER DEATH" by Clifford D. Simak
in the October Astounding

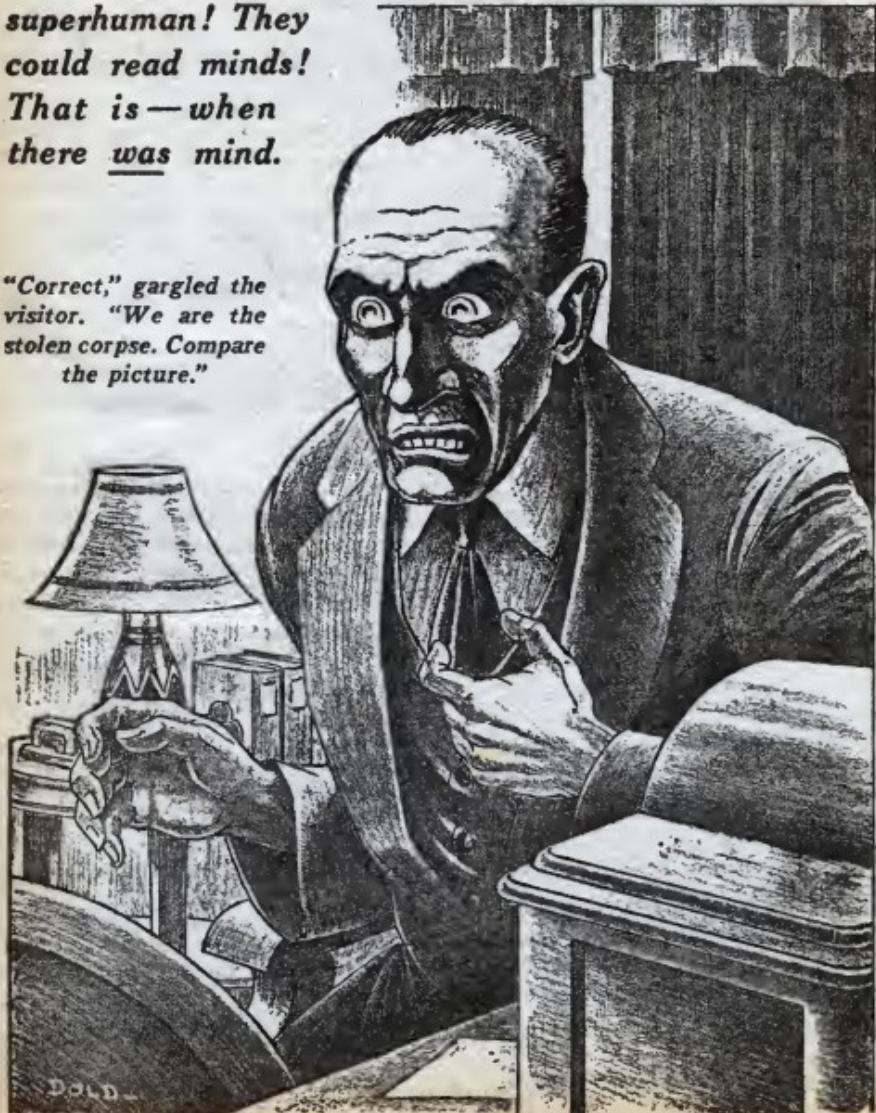
IMPULSE

By

Eric Frank Russell

Their number was legion! Their intelligence was superhuman! They could read minds! That is—when there was mind.

"Correct," gargled the visitor. "We are the stolen corpse. Compare the picture."



IT was his receptionist's evening off, and Dr. Blain had to answer the waiting-room buzzer himself. Mentally cursing the prolonged absence of Tod Mercer, his general factotum, he closed the tap of the burette, took the beaker of neutralized liquid from beneath, and set it on a shelf.

Hastily, he thrust a folding spatula into a vest pocket, rubbed his hands together, gave a brief glance around the small laboratory. Then he carried his tall, spare form to the waiting room.

The visitor was sprawled in an easy chair. Dr. Blain looked him over, and saw a cadaverous individual with mackerel eyes, mottled skin, and pale, bloated hands. The fellow's clothes didn't fit him much better than a sack.

Blain weighed him up as a case of pernicious ulcers, or else a hopeful seller of insurance that he had no intention of buying. In any event, he decided, the man's expression had a weird twist. It gave him the willies.

"Dr. Blain, I believe?" said the man in the chair. His voice gargled slowly, uncannily, and the sound of it grew pimplies down Blain's spine.

Without waiting for a reply, and with his dead optics fixed on the standing Blain, the visitor continued. "We are a cadaverous individual, with mackerel eyes, mottled skin, and pale, bloated hands."

Sitting down abruptly, Dr. Blain grasped the arms of his chair until his knuckles stood out like blisters. His visitor gargled slowly and imperturbably on.

"Our clothes don't fit us much better than a sack. We are a case of pernicious ulcers, or else a seller of insurance which you have no intention of buying. Our expression has a strange twist, and it gives you the willies."

The speaker rolled a rotting eye which leered, with horrible lack of luster, at the thunderstruck Blain. He added, "Our voice gurgles, and the sound of it

raises pimples on your spine. We have decaying eyes that leer at you with lack of luster that you consider horrible."

With a mighty effort, Blain leaned forward, red-faced, trembling. His iron-gray hairs were erect on the back of his neck. Before he could open his mouth, his visitor spoke his unuttered words for him: "Good heavens! You've been reading my very thoughts!"

The fellow's cold optics remained riveted to Blain's astounded face while the latter shot to his feet. Then he said, briefly, simply, "Be seated."

Blain remained standing. Small globules of perspiration crept through the skin of his brow, trickled down his tired, lined face.

More urgently, warningly, the other gulped, "Be seated!"

His legs strangely weak at the knees, Blain sat. He stared at the ghastly pallor of his visitor's features, and stammered, "W-who the devil are you?"

"That!" He tossed Blain a clipping.

A CASUAL LOOK, followed by one far more intent, then Blain protested, "But this is a newspaper report about a corpse being stolen from a morgue."

"Correct," agreed the being opposite.

"But I don't understand." Blain's strained features showed his puzzlement.

"This," said the other, pointing a colorless finger at his sagging vest, "is the corpse."

"What?" For the second time, Blain came to his feet. The clipping dropped from his nerveless fingers, fluttered to the carpet. He towered over the thing in the chair, expelled his breath in a loud hiss, and sought vainly for words.

"This is the body," repeated the claimant. His voice sounded as if it was being bubbled through thick oil. He pointed to the clipping. "You failed to notice the picture. Look at it. Compare the face with the one that we have got."

"We?" Blain queried, his mind in a whirl.

"We! There are many of us. We commandeered this body. Sit down."

"But—"

"Sit down!" The creature in the chair slid a cold, limp hand inside his sloppy jacket, lugged out a big automatic, and pointed it awkwardly. The weapon's muzzle gaped hugely to Blain's view. He sat down, recovered the clipping, and stared at the picture.

The caption said, "The late James Winstanley Clegg, whose body mysteriously vanished last night from the Simmstown morgue."

Blain looked at his visitor, then at the picture, then at his visitor again. The two were the same: undoubtedly the same. Blood began to pound in his arteries.

The automatic drooped, wavered, lifted up once more. "Your questions are anticipated," slobbered the late James Winstanley Clegg. "No, this is not a case of spontaneous revival of a cataleptic. Your idea is ingenious, but it does not explain the thought-reading."

"Then of what is this a case?" demanded Blain, with sudden courage.

"Confiscation." His eyes jerked unnaturally. "We have entered into possession. Before you is a man possessed." He permitted himself a ghoulish chuckle. "It seems that in life this brain was endowed with a sense of humor."

"Nevertheless, I can't—"

"Silence!" The gun wagged to emphasize the command. "We shall talk; you will listen. We shall comprehend your thoughts."

"All right." Dr. Blain lay back in his chair, kept a wary eye on the door. He felt convinced that he had to deal with a madman. Yes, a maniac—despite the thought-reading, despite that picture on the clipping.

"TWO DAYS AGO," gargled Clegg, or what once had been Clegg, "a so-

called meteor landed outside this town."

"I read about it," Blain admitted. "They looked for it, but failed to find it."

"That phenomenon was actually a space-vessel." The automatic sagged in the flabby hand; its holder rested the weapon on his lap. "It was a space-vessel which had carried us from our home world of Glantok. The vessel was exceedingly small by your standards—but we, too, are small. Very small. We are submicroscopic, and our number is myriad.

"No, not intelligent germs." The ghastly speaker stole the thought from his listener's mind. "We are less even than those." He paused while he searched around for words more explicit. "In the mass we resemble a liquid. You might regard us as an intelligent virus."

"Oh!" Blain struggled to calculate the number of jumps necessary to reach the door, and do it without revealing his thoughts.

"We Glantokians are parasitical in the sense that we inhabit and control the bodies of lesser creatures. We came here, to your world, while occupying the body of a small Glantokian mammal." He coughed with a viscous rumble deep down in his gullet, then continued.

"When we landed and emerged, an excited dog chased our creature, and caught it. We caught the dog. Our creature died when we deserted it. The dog was useless for our purpose, but it served to transport us into your town, and find us this body. We acquired the body. When we left the dog it lay on its back and died."

The gate creaked with a sudden rasping sound that brought Blain's taut nerves to snapping point. Light footsteps pit-patted up the asphalt path toward the front door. He waited with bated breath, ears alert, eyes wide with apprehension.

"We took this body, liquefied the congealed blood, loosened the rigid joints,

softened the dead muscles, and made it walk. It seems that its brain was fairly intelligent in life, and, even in death, its memories remain recorded. We utilize this dead brain's knowledge to think in human terms, and to converse with you after your own fashion."

The approaching footsteps were near, very near. Blain shifted his feet to a solid position on the rug, tightened his grip on the arms of his chair, and fought to keep his thoughts under control. The other took not the slightest notice, but kept his haggard face turned to Blain, and continued slushily to mouth his words.

"Under our control, the body stole these clothes, and this weapon. Its own defunct mind recorded the weapon's purpose and told us how it is used. It also told us about you."

"Me?" Startled, Dr. Blain leaned forward, braced his arms, and calculated that his intended spring would barely beat the lift of the opposing automatic. The feet outside had reached the steps.

"It is not wise," warned the creature who claimed to be a corpse. He raised his gun with lethargic hand. "Your thoughts are not only observed, but their conclusions anticipated."

BLAIN RELAXED. The feet were tripping up the steps to the front door.

"A dead body is a mere makeshift," the other mouthed. "We must have a live one, with little or no organic disability. As we increase, we must have more bodies. Unfortunately, the susceptibility of nervous systems is in direct proportion to the intelligence of their owners." He gasped, then choked with the same liquid rattle as before.

"We cannot guarantee to occupy the bodies of the intelligently conscious without sending them insane in the process. A disordered brain is less use to us than a recently dead one, and no more use

than a wrecked machine would be to you."

The patter of leather ceased; the front door opened, and somebody entered the passage. The door clicked shut. Feet moved along the carpet toward the waiting room.

"Therefore," continued the human who was not human, "we must occupy the intelligent while they are too deeply unconscious to be affected by our permeation, and we must be in complete possession when they awake. We must have the assistance of someone able to treat the intelligent in the manner we desire, and do it without arousing general suspicion. In other words, we require the coöperation of a doctor."

The awful eyes bulged slightly. Their owner added, "Since this inefficient body is beyond even our power to animate much longer, we must have a fresh, live, healthy one as soon as it can be obtained."

The feet in the passage hesitated, stopped. The door opened. At that instant, the dead Clegg stabbed a pallid finger at Blain, and burbled, "You will assist us"—the finger swerved toward the door—"and that body will do for the first."

The girl in the doorway was young, fair-haired, pleasingly plump. She posed there, one hand concealing the crimson of her small, half-opened mouth. Her blue eyes were wide with fearful fascination as they gazed at the blanched mask behind the pointing finger.

There was a moment's deep silence, while the digit maintained its fateful gesture. Its owner's features became subject to progressive achromatism, grew more hueless, more ashy. His optics—dead balls in frigid sockets—suddenly glittered with minute specks of light, green light, hellish. He struggled clumsily to his feet, teetered backward and forward on his heels.

The girl gasped. Her eyes lowered, saw the automatic in a hand escaped

from the grave. She screamed on a note weak because of its height. She screamed as if she was surrendering her soul to the unknown. Then, as the living dead tottered toward her, she closed her eyes, and slumped.

Blain got her just before she hit the floor. He covered the distance in three frantic leaps, caught her smoothly molded body, saved it from bruising contact. He rested her head upon the carpet, patted her cheeks vigorously.

"She's fainted," he growled, in open anger. "She may be a patient, or may have come to summon me to a patient. An urgent case, perhaps."

"Enough!" The voice was curt, despite its eerie bubbling. The gun pointed directly at Blain's brow. "We see, from your thoughts, that this fainting condition is a temporary one. Nevertheless, it is opportune. You will take advantage of the situation, place the body under an anæsthetic, and we shall claim it for our own."

FROM HIS kneeling position beside the girl, Blain looked up and said, slowly and deliberately, "I shall see you in hell!"

"No need to have spoken the thought," remarked the creature. He grimaced horribly, took two jerky steps forward. "You may do it yourself, or else we shall do it with the aid of your own knowledge and your own flesh. A bullet through your heart, we take possession of you, repair the wound, and you are ours.

"Damn you!" he cursed, stealing the words from Blain's own lips. "We could use you in any case, but we prefer a live body to a dead one."

Throwing a hopeless glance around the room, Dr. Blain uttered a mental prayer for help—a prayer cut short by the grin of understanding on his opponent's face. Getting up from his knees, he lifted the girl's limp form, carried her through the door, along the passage, and

into his surgery. The thing that was the body of Clegg stumbled grotesquely behind him.

Gently lowering the girl to a chair, Blain rubbed her hands and wrists, patted her cheeks again. Faint color crept back to her skin; her eyes fluttered. Blain stepped to a cupboard, slid aside its glass doors, grasped a bottle of *sal volatile*. Something hard prodded him between his shoulder blades. It was the automatic.

"You forget that your mind-processes are like an open book. You are trying to revive the body, and are playing for time." The sickly countenance behind the weapon forced its facial muscles into a lopsided scowl. "Place the body on that table, and anæsthetize it."

Unwillingly, Dr. Blain withdrew his hand from the cupboard. He picked up the girl, laid her on the examination table, switched on the powerful lamp that hung directly overhead.

"More meddling!" commented the other. "Turn off that lamp—the one already burning is quite sufficient."

Blain turned off the lamp. His face drawn with agitation, but head erect, his fists bunched, he faced the menacing weapon, and said, "Listen to me. I'll make you a proposition."

"Nonsense!" The former Clegg wandered around the table with slow, dragging steps. "As we remarked before, you are playing for time. Your own brain advertises the fact." He stopped abruptly as the recumbent girl murmured vague words, and tried to sit up. "Quick! The anæsthetic!"

Before either could move, the girl sat up. She came upright, and looked straight into a ghastly face that moped and mowed a foot from her own features. She shuddered, and said, pitifully, "Let me out of here. Let me out. Please!"

A bloated hand reached out to push her. She lay down to avoid contact with the loathsome flesh.

Taking advantage of the slight diversion, Blain slid a hand behind his back, felt for an ornamental poker hanging on the wall. The gun swung up even as his fingers found the impromptu weapon, and curled around its cool metal.

"You forget yourself." Pin-point fires sparkled in the other's blotchy orbs. "Mental understanding is not limited in direction. We see you even when these eyes are elsewhere." The gun moved to indicate the girl. "Tie that body down."

OBEIDENTLY, Dr. Blain found straps, fastened the girl securely to the table. His gray hair was limp, his face moist, as he bent over her and threaded the buckles. He looked at her with courage hardly justified, and whispered, "Patience—do not fear." He threw a significant glance at the clock ticking upon the wall. The instrument's hands indicated two minutes before eight.

"So you expect aid," effervesced the tones of a corporate myriad. "Tod Mercer, your handyman, who ought to have been here before now. You think he might be of help, though you have little faith in what few wits he has got. In your opinion, he is a dumb ox—too stupid to know his feet from his hands."

"You devil!" swore Dr. Blain, at this recital of his thoughts.

"Let this Mercer come. He will be of use—to us! There are enough of us for two bodies—and even a live fool is better than an educated corpse." Anæmic lips twisted in a snarl that revealed dry teeth. "Meanwhile, get busy with that body."

"I don't think I have any ether," Blain protested.

"You have something that will do. Your cortex shouts it! Be speedy, lest we lose patience and take you at the cost of your sanity."

Swallowing hard, Blain opened a drawer and extracted a nasal frame. He clipped on its cotton gauze pad, placed

the frame over the frightened girl's nose. He felt safe in giving her a reassuring wink. A wink is not a thought.

Opening the cupboard once more, Blain stood in front of it, summoned all his faculties, and compelled his mind to recite, "Ether, ether, ether." At the same time, he forced his hand toward a bottle of concentrated sulphuric acid. He made a mighty effort to achieve his dual purpose, urged his fingers nearer and nearer to the bottle. He got it.

Straining every fiber of his being to do one thing while his mind was fixed upon another, he turned around, withdrawing the glass stopper as he turned. Then he stood still, the open bottle in his right hand. The figure of death was immediately in front of him, gun raised.

"Ether," sneered the vocal cords of Clegg. "Your conscious mind yelled, 'Ether!' while your subconscious mind whispered, 'Acid!' Do you think your inferior intelligence can cope with ours? Do you think you can destroy that which is already dead? You fool!" The gun inched forward. "The anæsthetic—without further delay."

Offering no reply, Dr. Blain rammed the stopper into its neck, replaced the bottle whence he had got it. More deliberately, moving with utmost slowness, he crossed the floor to a smaller cupboard, opened it, took out a small bottle of ether. He placed the bottle on the radiator, and made to close the cupboard.

"Take it off!" croaked the uncanny voice, with high-pitched urgency. The gun emitted a warning click as Blain snatched the bottle. "So you hoped the radiator would make the stuff vaporize rapidly enough to burst the bottle, eh?"

Dr. Blain said nothing. Taking as much time as possible, he conveyed the volatile liquid to the table. The girl watched his approach, her eyes wide with apprehension. She gave a low sob. Blain flung a glance at the clock, but, quick as the glance was, his tormenter

'caught the thought behind it, and grinned.

"He is here, now."

"Who is here?" demanded Blain.

"Your man, Mercer. He is outside, and just about to enter the front door. We perceive the futile wanderings of his sluggish mind. You have not overestimated what little intelligence he does possess."

The front door opened in confirmation of the speaker's prophecy. The girl struggled to raise her head, hope in her eyes.

"Prop her mouth open with something," articulated the voice under alien control. "We shall enter through the mouth." He paused, as heavy feet scuffed on the front door mat. "And call that fool in here. We shall use him also."

HIS VEINS bulging on his forehead, Dr. Blain called, "Tod! Come here!" He found a dental gag, toyed with its ratchet.

Excitement thrilled his nerves from head to feet. No gun could shoot two ways at once. If he could wangle the idiotic Mercer into the right position, and put him wise— If he could be on one side, and Tod on the other—

"Don't try it," advised the animated Clegg. "Don't even think it. If you do, we shall end up by having you both."

Tod Mercer lumbered into the room, his heavy soles thumping the rug. He was a big man, with thick shoulders jutting below a plump, moonlike face that sprouted two days' growth. He stopped when he saw the table and the girl. His great, wide, stupid eyes roamed from the girl to the doctor.

"Heck, Doc," he said, with an uneasy fidget, "I got me a puncture, and had to change tires on the road."

"Never mind about that," came a sardonic rumble right behind him. "You're in plenty of time."

Tod turned around sluggishly, twist-

ing his boots as if each weighed a ton. He stared at the thing that had been Clegg, and said, "Beg pardon, Mister. I didn't know you was there."

His cowlike eyes wandered disinterestedly over the living corpse, over the pointing automatic, then slewed toward the anxious Blain. Tod opened his mouth to say something. He closed the mouth; a look of faint surprise came into his fat features; his eyes swiveled back and found the automatic again.

This time, the look didn't last one tenth of a second. His eyes realized what they saw. He swung a hamlike fist with astounding swiftness, slammed it into the erstwhile Clegg's awful features. The blow was dynamite, sheer dynamite. The cadaver went down with a crash that shook the room.

"Quick!" screamed Dr. Blain. "Get the gun." He vaulted the intervening table—girl and all—landed heavily, made a wild kick at the weapon still gripped in a flabby hand.

Tod Mercer stood abashed, his eyes turning this way and that. The automatic exploded thunderously; its slug nicked the tubular metal edge of the table, ricocheted with a noise like that of a buzz saw, and ripped a foot of plaster from the opposite wall.

Blain kicked frantically at a ghastly wrist, missed it when its owner jerked it aside. The gun boomed again. Glass tinkled in the farther cupboard. The girl on the table screamed shrilly.

The scream penetrated Mercer's thick skull, and brought action. Slamming down a great boot, he imprisoned a rubbery wrist beneath his heel, plucked the automatic from cold fingers. He hefted the weapon, pointed it.

"You can't kill it like that," shouted Blain. He jabbed Tod Mercer to emphasize his words. "Get the girl out of here. Jump to it, man, for Heaven's sake!"

Blain's urgency brooked no argument. Mercer handed over the automatic,

moved to the table, ripped the straps from the weeping girl. His huge arms plucked her up, bore her from the room.

Down on the floor, the pilfered body writhed and struggled to get up. Its rotting eyes had disappeared. Their sockets were now filled with swirling pools of emerald luminosity. Its mouth gaped as it slowly regurgitated a bright green phosphorescence. The spawn of Glantok was leaving its host!

The body sat up with its back to the wall. Its limbs jerked and twitched in nightmarish postures. It was a fearful travesty of a human being. Green—bright and living green—crept sinuously from its eyes and mouth, formed twisting, swirling snakes and pools upon the floor.

Blain gained the door in one gigantic leap, snatching the ether bottle from the table as he passed. He stood in the doorway, trembling. Then he flung the bottle in the center of the seething green. He flicked his automatic lighter, tossed it after the bottle. The entire room boomed into a mighty blast of flame that immediately became a fiery hell.

THE GIRL clung tightly to Dr. Blain's arm while they stood by the roadside, and watched the house burn. She said, "I came to call you to my kid brother. We think he's got measles."

"I'll be along soon," Blain promised. A sedan roared up the road, stopped near them with engine still racing. A policeman put his head out, and shouted, "What a blaze! We saw the glare a mile back along the road. We've called the fire department."

"They'll be too late, I'm afraid," said Blain.

"Insured?" asked the policeman sympathetically.

"Yes."

"Everybody out of the house?"

Blain nodded an affirmative, and the policeman said, "We happened to be out this way looking for an escaped nut."

The sedan rolled forward.

"Hey!" Blain shouted. The sedan stopped again. "Was this madman's name James Winstanley Clegg?"

"Clegg?" came the driver's voice from the other side of the sedan. "Why, that's the fellow whose body walked out of the morgue when the attendant had his back turned for a minute. Funny thing, they found a dead mongrel in the morgue right by where the missing body ought to have been. The reporters are starting to call it a werewolf, but it's still a dog to me."

"Anyway, this fellow isn't Clegg," chimed in the first policeman. "He's Wilson. He's small, but nasty. This is what he looks like." He stretched an arm from the automobile, handed Blain a photograph. Blain studied the picture in the light of rising flames. It bore not the slightest resemblance to his visitor of that evening.

"I'll remember that face," Dr. Blain commented, handing the photograph back.

"Know anything about this Clegg mystery?" inquired the driver.

"I know that he's dead," Blain answered truthfully.

Pensively, Dr. Blain watched flames leap skyward from his home. He turned to the gaping Mercer, and said, "What beats me is how you managed to hit that fellow without him anticipating your intention, and plugging you where you stood."

"I saw the gun, and I 'it 'im." Mercer spread apologetic hands. "I saw 'e'd got a gun, and I 'it 'im without thinking."

"Without thinking!" murmured Blain.

Dr. Blain chewed his bottom lip, stared at the mounting fire. Roof timbers caved in with a violent crash; a flood of sparks poured upward.

With his mind, but not his ears, he heard faint threnodies of an alien wail that became weaker and weaker, and, presently, died away.

We stepped through that dungeon door,
and it let us pass not to a dungeon—but
back another 1500 years to Nero's arena!





Arthur J. Burks *tells of*

THE TRAPPER

who set his strange time-traps through all the ages.

I WAS just a young and rather pompous second lieutenant of marines, riding a mule into Enriquillo, Dominican Republic, where eight or nine of my men were engaged in doing their share of mapping Santo Domingo for military purposes. My mission was

routine, even prosaic. I'd got word by native courier that my men were out of funds with which to buy groceries from the Spaniards, and was taking them some cash.

This was in 1923—an important date to remember.

The natives, easy laughers all, grinned at me as I rode in—especially the shopkeepers—because everybody knew I came with money in my pockets.

Corporal Harvey Cameron was in charge of this particular detail, or mapping patrol. Under him were a slender, brilliant, pale-faced private named Fox; a silent fellow named Fenske who was a good, natural mechanic—which was probably why we had him making maps, a part-Indian named Haralson; a long, gangling Bulgarian named Nikifor Popoff, whom we called "The Iron Man" because he was tireless and indestructible; and various others whose names I have forgotten. Oh, yes, Toy, our medico.

I acknowledged Cameron's salute, studied his face and those of the others, and knew that something startling had happened to them.

"Well," I said, dismounting, and giving my mule to a kid, "spill it. What's up?"

"An old Spanish caravel, sir," said Cameron, "fifteen hundred feet above sea level, back in the hills. Thought the lieutenant would like to go have a look right away!"

Cameron knew I did stories on the side, knew that I would start right off.

"Let's go!" I said. "Take your automatics and rifles!"

I gave that command only to make sure they weren't left behind for the natives to steal, not because I had any inkling of the immediate future. We started off.

Cameron and I led the way, walking at a fast clip. The others were in loose, gabbling formation behind us.

An old hag yelled at us in Spanish: "Don't go! Don't go! We like you—do not wish you to take the long fall!"

I looked at Cameron. "What's she driving at?" I asked.

"I haven't the slightest idea, sir. They've never acted like this. I don't know what the 'long fall' is. There's

no place up there to fall from that I know of. It's suddenly all a lot queerer than I thought it was!"

Haralson, who never had much to say, having the Indian's gift for silence, broke in: "My people have a legend of the long fall!"

"What is it?" asked Cameron quickly.

"Not sensible," said Haralson. "It means to fall backward down the steps of Time! That old dame knows the legend, or is just talking!"

"Legends," said Cameron, "almost always have a foundation in good, solid fact, and are legends only because the facts have been lost in the mists of Time. As a good amateur scientist, I'm sure of that. I've got the damnedest feeling that we shouldn't go on."

I looked back to see the men exchanging glances. They felt the same way. So did I. But we all knew that if we turned back we'd never be satisfied, all the rest of our lives, that we hadn't missed something amazing. We'd have been right, too. So we went on.

JUST AS our heads began to rise above the spot where the trail was level again—we'd been climbing a snake-trace trail for perhaps an hour—I had the queerest feeling that I was walking into an invisible cobweb. I don't know what else to call the feeling. I snapped a glance at Cameron, and distinctly saw him fling up his arms to brush something away. Something invisible.

We both went through it, whatever it was, and stopped. We turned as one man, and looked back. Only Haralson was right with Cameron and me, and his face was strange. He said: "*A time-trap!* We're caught. My people whisper, down the ages, of this invisible curtain!"

I knew he meant, by "my people," the Indians, though I took no stock at the moment in what he said.

But—the trail behind us had vanished! Our other marines were no-

where to be seen! Yet we had just come up the trail, and the marines had been at our heels. Then Fenske appeared first, apparently out of nothingness, with a look of terror on his face, and with his hands wiping off something nobody could see. After him came Popoff, his eyes blazing with excitement. Toy came next, and he wasn't chuckling. Then the others, one at a time, out of invisibility into plain sight.

"Lord," said Popoff, "I thought everybody ahead of me had simply stepped into nothing."

He was a materialist. We were all "through," staring at each other, when Popoff, of his own initiative, turned and went back "through," using his hands and arms as though he were pushing aside a curtain. Almost instantly he came back, pop-eyed.

"It scared me," he said. "I was all alone. I looked back and couldn't see any of you—only the trail to Enriquillo, empty. I yelled at the top of my lungs!"

That made us all exchange glances again. We hadn't heard any yell.

"At least," I said, after a moment, "we can go back, if we need to. So, why not find out what the mystery is?"

WE TURNED and looked ahead of us. But we didn't see any caravel. We saw a walled castle in the hill-encircled valley directly ahead. It was like Fort Ozama—built in 1504 or thereabouts, by Columbus' governors—with the Torre de Homenaje rising from the middle of it. Only this was smaller. Ruins of various fortresses had been found by our mappers in different parts of the Republic.

But nobody had ever found one intact.

And nobody had even *dreamed*—unless I had—of running onto one whose walls were crowded with troops in ancient regalia, looking exceedingly warlike—if startled until their mouths hung open—and fearless! Their faces stood

out in startling clarity, as did every detail of the fortress, because the midday sun covered all with its burning, all-revealing rays.

This, mind you, was not at midnight, under a gibbous moon, but in a Dominican, sunny midday.

I looked at Toy. He was shaking out his thermometer. We all waited while he took his own temperature. He put the thing away and said: "Exactly normal. I'm all right, anyhow, and this is what happened to me."

He told us. I've already reported it. I looked at Cameron, and steady, hard-headed Cameron said: "We've stepped through into the fourth dimension, or something!"

"No," said Haralson, "a time-trap, I tell you!"

From the fortress came a hail in truculent Spanish. Most of us had a smattering of the lingo of the natives, and all of us understood the hail, though the Spanish was like none we had ever heard.

"Who comes! Answer at once, in the King's name!"

My answer was instinctive, young, and quite in character.

"You've got a lot of guts, whoever you are, getting tough with a patrol of leathernecks! Who the hell wants to know?"

I was quite sure, the next second, that they had expected no such answer, even from us.

"Come on," I said grimly, "let's find out what this is all about."

"Time-trap," Cameron muttered, "and legends are based on fact!"

The leathernecks hitched their holsters forward, unslung their rifles without command. We moved forward with swift, steady strides. We drew apart into something like extended order, without command being spoken or signal given.

The challenge came again.

"Halt, or we open fire!"

Muzzles of strange weapons appeared over the parapet. They looked as though they meant business. Popoff was our best rifle shot. I looked at him. We all paused for a second. He dropped to a kneeling position, aimed and fired. A man in neat, not-too-cumbersome, well-fitting armor, pitched from the parapet to smear himself on the rocks below.

"A high five, at one o'clock," said Popoff calmly, "in the bull's-eye!"

"Haralson," muttered Cameron, "by instinct, knows!"

I knew the bullet hole in the dead man would be just above the poor devil's left eye. We moved on forward. Not a shot was fired at us. Every face disappeared from the battlements, and out of the fortress came the chattering of many terrified, awe-stricken men.

II.

WE WAITED for a sudden eruption of savage activity, but nothing of the sort came. And from that day to this, on the average of once a month—or right after I have reminisced with someone who served with me in Santo Domingo, long ago—I start from a terrified dream at the sound of a vast, creaking door swinging open. The sound was like nothing I had ever heard before. With the exception of myself, the marines flung themselves flat, adjusted rifle slings, loaded their rifles. Their eyes were glued on the opening gate, out of which we all expected a sortie. Why they hadn't tried to mow us down from the battlements puzzled me, until it struck me that they had no firearms that could have reached us from the spot where Popoff had fired that single shot.

I stared at that gate. The sound of it had the effect on nerves of a rasp and file rubbed together by an idiot. My nerves sang and hummed like bowstrings, and in that I—I fondly hoped—

turned on that swinging, monstrous gate, a calm exterior, caused me no little satisfaction. My men could take up the prone position, hugging the ground as closely as they could, but an officer faced whatever had to be faced with his head held proudly erect. The marines were far wiser. I was a perfect target.

Men began to debouch from the gate, spreading out fan-wise. They carried no weapons at all. Indeed we could see them piled within the gate. Their right hands were raised in the ancient sign of amity. At least that's what I took their gestures to mean.

"Advance without fear," came again in that queer, archaic Spanish. "We offer you no harm."

I hesitated, but realized that they were sincere and no little terrified.

"Lock your pieces," I said softly to the marines, "but keep your thumbs on the lock. These mugs haven't a great reputation for anything except treachery."

I advanced on the leader, who shouted to several of his men to gather up the man Popoff had shot. The men went running, but they didn't look where they were going. They looked at us. As strange a pair of groups as ever met anywhere met before the open gate of that ancient fortress. The man who seemed to be the leader was a handsome devil, with shrewd eyes that shot fire—eyes I wouldn't trust anywhere. They indicated a ruthlessness, I thought, that gave me the creeps.

"Whence comest thou?" this one demanded. "And what are you called?"

"I'm Second Lieutenant James Wells," I said, "of the United States Marine Corps, and I come, within the last two hours, from Enriquillo."

"An odd, outlandish name," he replied. "No offense meant, of course. But what is the United States? The United States of what? And where is Enriquillo?"

I STARED at the man, still not willing to accept the evidence of my own senses.

"Would you mind telling me, sir," I said, "what the date is?"

"Certainly not, sir. It's January 15, 1503!"

"That," I said grimly, while my men gasped behind me, "is all I wanted to know."

"What the hell was that you gave us to drink, Toy?" I heard Cameron say, but not with much conviction. He knew, as Toy knew, and all the rest of us, that that drink hadn't even nicked the far corners of our senses. Toy didn't answer—except in a strange way. He walked up to the speaker, asked him to open his mouth. The man's eyes popped open, but he opened because he was afraid not to. I think, in other circumstances, what Toy did would have been funny. Now it wasn't. And it was a logical thing to do. He told the leader not to bite the glass in two, and shoved the thermometer into his mouth. Everybody—all the strangers—stared in amazement. The leathernecks didn't understand, but were getting a bang out of it and began to crack jokes. Toy took the thermometer out of the leader's mouth, looked at it.

"He's normal, anyhow," he said. "And real!"

I didn't know whether that was a relief or a disappointment. Meantime, the men sent for the dead soldier brought the corpse to us. Popoff's bullet had hit him above the left eye, and knocked the whole back of his head off. Nobody seemed much concerned, but everybody was amazed at the execution of that shot. The strangers got curious about our rifles and wanted to look at them. I told Cameron to keep an eye on things, take plenty of care, but let the strangers look. Then I turned my attention to the leader.

"Your name, sir?" I asked.

"Don Alvarado," he replied, lifting his head with pride. I could see I was supposed to be impressed. "Alvarado de Goza, trusted lieutenant of Cristobal Colon! But now my honor will rise to the skies, for I can take him proof that there be many wonders in this New World that we have not yet found, but for which we have searched diligently. White aborigines, already with a smattering of our tongue."

I gasped. I'd been called a lot of things, but never a white Indian. And this chap was far less surprised to encounter me than I him. I could understand that, for he and his kind had come to the New World in the first place expecting to see all manner of strange things—so that nothing they actually *did* encounter amazed them for very long. Alvarado's men were examining our clothing, fingering our khaki slacks, commenting on our sturdy shoes. One man even got down on his knees and stared at his reflection in my leather leggings! The dead man was ordered taken away, and several men took him, fast, and must have dumped him unceremoniously around a corner, for they scarcely disappeared than they were back again.

"Look, lieutenant," said Cameron, "now that we're here I'd like to have a real look at this joint. Last time I was here it was nothing but a bunch of old, rusty chain, some ancient cannon, and a lot of other miscellaneous junk. Since we've stepped into the fourth dimension, let's take a look around."

I wanted that myself. I commanded my men to keep their rifles at the ready, and asked Alvarado to take us into the fortress. Inside it was exactly like Ozama again, save that it was smaller. I'd served in Fort Ozama, as had all my marines, so we all knew. It was a bit disappointing. If the colonel in command of the regiment garrisoning Ozama had suddenly come to confront

us, none of us would have been surprised.

However, he'd have put us all in the brig on general principles, for the fort was the dirtiest place I have ever seen. The walls, inside, were the lavatories—to be more than polite—and the stench of unwashed bodies, which had been noticeable outside, but was overpowering here, rose to high heaven. Alvarado, curious, kept plying me with questions. I knew that he wouldn't, if he actually believed the date to be 1503, believe me if I told him the truth—for he was gabbling with some of his lieutenants about how they'd all cover themselves with glory by getting us to lead them to the United States, whose king they would bring in triumph and in chains to Cristobal Colon. Maybe Alvarado would even become governor of the new land! I had to grin when I thought of this mob making an attack on the United States—thought of which gave me a qualm of doubt as I mused: "Suppose we're stuck here and can't get back?"

I WASN'T much afraid, though I might have been if I hadn't had those tough marines at my back. I was watching for treachery and thinking myself a suspicious rat for doing so, and wondering if I would ever dare tell this when and if I got back.

Words came back to me—the cry of the hag at Enriquillo. Was *this* the "long fall" to which she had referred? Had she meant a "long fall" down the stairway of Time? What else? I didn't know. I don't know now. Maybe she herself didn't know, but simply snatched words out of the air. Not as strange as it sounds at the moment, perhaps.

I was thinking of all that, and not paying too much attention to our hosts, when Alvarado started a string of questions: "What made you ask the date, lieutenant? It struck me as odd that

you didn't know."

I should have sensed a trap, but I didn't. Alvarado would have made a swell poker player.

"Because," I said, "the actual date out of which I come with my companions is 1923!"

He gasped. His face got white. Then his eyes blazed with fury. "And what of this United States you mention?" he went on.

"The United States of America," I said, suddenly enjoying myself. "It occupies most of the continent lying west of San Salvador, where Cristobal Colon first touched land in the New World—according to the legend!"

"Legend?" he repeated. "You regard Cristobal Colon as a legend?"

"Not in detail, but more damned lies have surrounded his name for almost five hundred years than you could shake a stick at."

He looked puzzled for a moment. "Shake a stick at? Why should one shake a stick at lies? And how do you dare speak of lies in connection with the illustrious name of Cristobal Colon?"

"Hell," I said, "you can't libel anybody who's been dead as long as that old boy has. We've done him plenty of honor, though. We've named a lot of cities after him, all through the United States—"

"Named places after him, when you don't even know him?"

There wasn't, I saw, any way I could reach him. I had past history to go on in dealing with Alvarado; he had nothing by which to grasp me and mine, because to him we were out of a future he would never live to see.

A gorgeously beautiful Indian woman came out of a door and looked at us, her face expressionless. She was regal as all get out. Statuesque, proud, sorrowful.

"Pipe the dame," said Toy. "Did you ever see anything like *her* down here?"

Nobody had, for a long time. I

whirled and looked at Haralson. I had never seen him stand so straightly, even when he was standing inspection. Pride that never came from service with the marines looked out of his eyes. I thought his swarthy cheeks took on an even deeper tinge of color. I saw, it seemed to me, an Indian—full-blooded and glorious with pride—emerge from the generations of hybridization which had gone into the making of the man I knew as Haralson. His lips were moving, speaking a name that struck a chord in my memory.

"Anacaona! Anacaona! Anacaona!"

Alvarado stared at Haralson, then whirled on me. "You come back to us out of the future," he said. "Yet how is it that one of your men knows and recognizes the captive Carib queen, Anacaona?"

I gasped in amazement. "Is that regal lady really Anacaona?" I asked.

"Yes," he replied, "and well you know it."

TWO WEEKS before I had flown from Santo Domingo City to San Juan, Province of Azua, and our DH two-seater had landed in the midst of a great circle of white rocks, which I was told was known as "The Circle of Anacaona." But that was a hundred miles away, and, at the moment, a lot of years in the future.

My men heard all this—all except Haralson, who was staring at Anacaona with his heart in his face. I looked at her and she was staring back, with something approaching recognition in her eyes. She even took a step forward and said something that sounded like: "*Caci-que!*"

As I recalled, the name meant, in Carib days, the chief of a tribe. Haralson, straightening even more, started to say something, when Alvarado exploded into a flood of invective.

"Spies! Demons! Whatever you are! You come to us, unasked, with

your mouths filled with lies. You, whatever your name is, take one step toward the captive queen and you are a dead man! Seize them, seize them all! Throw them into the dungeon!"

We were taken unprepared. Popoff got himself another Spaniard, but got off just one shot, and didn't get Alvarado. We'd let them all get too close to us. Now we paid for our folly, were captured and disarmed before we could do anything to protect ourselves.

Strangely, though, Alvarado said: "Their weapons are black magic, too!" He was like a madman. "Throw them into the dungeon first. Let's see their magic get them out before we torture them to death."

They dragged us to a huge, bolt-studded door.

"Keep back their leader," yelled Alvarado, "so they can't organize any revolt before we close the door."

Anyway, his appreciation of our dangerousness was immense—a lot greater than my own!

Toy went through first. I heard him scream and wondered what horror he had been flung to. Then Cameron, who swore like a trooper. Then Haralson, who was a man numb with disappointment, because Anacaona had shrugged hopelessly, with a heartbreaking sag to her shoulders, turned her back and gone through the door whence she had come. I had never seen such sorrow on the face of any man as that which covered the proud face of Haralson.

The rest were flung through. It took four men to get Popoff through that door. I heard a Springfield bark savagely, twice, and caught my breath, wondering what the hell—

I was the last through. The door banged shut behind me.

I got a surprise, though from the shouts of my men I should have been prepared. We hadn't, in effect, been hurled into a *dungeon*, but had been catapulted from a cell—

Into blazing sunlight which showered down upon the Coliseum! I recognized the place instantly.

I SAW NERO, surrounded by other fat men. I saw hundreds of the most beautiful women who ever walked this Earth. I saw senators in togas and sandals. I saw that the Coliseum was in excellent repair—that it was, in fact, exactly as it must have been when the gladiators had been at their height of fame.

Haralson said: "My people knew, then! It seems simple, doesn't it—we go down a flight of steps? We are now on the second one!"

Cameron, now more scientist than leatherneck corporal, more concerned about the whys and wherefores than the "impossible" fact of our presence in the Coliseum, was staring at Haralson, muttering: "If you only *knew*, Haralson, and could tell it! I could buy myself out of the Marine Corps five times over by finding the exact, scientific answer! But even with *you* it is legend!"

Legend? All this happening had something to do with legend?

But it was real. I knew that. My men did, too.

They were all kneeling, rifles at their shoulders, steady as rocks, their eyes fixed on the savage, roaring beasts in the vast arena.

There were tigers, leopards, lions, being released from doors in chutes at the far end of the arena, opposite us. And that they were being turned in for us to fight, for the edification of fat Nero and his sycophants all of us knew instantly, beyond a shadow of doubt.

A great lion, with a magnificent mane, spotted us, lifted his head, lashed his tail and roared. The roar shook the air about our ears. It called the attention of the other great cats to us.

The king of beasts, while thousands of Rome's greatest roared with ap-

proval and excitement, began a catapulting charge.

"This is one swell time to be able to call your shots, Popoff!" I said to the Iron Man, who knelt at my right.

"Yes, sir," said Popoff calmly. "Watch the jam at the exits when we all start firing! The echoes in this place—"

Popoff, even as he spoke so calmly, squeezed off a shot. The king of beasts leaped ten feet straight in the air, clawing at his magnificent mane.

III.

MY AUTOMATIC, which still swung at my side in a leather holster, would be of little avail against the brutes in that arena. I left their killing, then, to my men. Toy rested on one knee behind the rank of marines, and he was calmly getting his medical kit unrolled against possible need of it.

I said: "Don't start shooting wild. Hold and squeeze every shot!" It sounded queer, even to me, to be talking like that, yet as natural as anything I had ever done. I'd issued commands like this on a dozen rifle ranges. I had trained leathernecks who had made records with rifles. This lot was a representative group. And nobody who could hold and aim a rifle could miss these huge beasts anyhow.

As the lion came on, leading the pack, I raised my eyes to the great and marvelous figures who occupied the mighty tiers of seats. Nero was leaning forward, his fat face a mask of amazement, his slobbery mouth a round, drooling, startled O. And the mouth went shut with a snap that was almost audible when the echoes of Popoff's shot at the lion blasted through the Coliseum. It startled even me, for my imagination had catapulted my brain itself back into the past, so that I myself was startled by a shot in a place that could never,

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in its heyday, possibly have heard such a thing.

The monster lion fell, still clawing at his beard. He struggled for a moment on the ground, then sprawled out. I could see blood spurting from his head.

"I like the left eye," said Popoff calmly. "Some sort of complex, maybe!"

The other marines were firing now, slowly, methodically. I calculated the time to a nicety. We'd get the last of the beasts, if none turned tail and fled, just about the time their hideous talons got close enough to nail one of us. That was all right with me. I didn't mind a close shave—as long as we got away all right.

The rifles spoke, spat. A leopardsse was caught in the middle of a leap. Her head was knocked clear back against her side. The crowd was shrieking. I looked up at them calmly. I saw a lot of hands uplifted. I saw a lot of thumbs turned downward, but whether as signals to us to slay—that the crowd was with us—or for the animals to get us, and get us good, I didn't know. I'd find out soon enough, when we found the answer to all this.

At first I'd suspected some trick of Cameron, except that I'd never heard of him playing a trick on anyone, certainly not on his superior officer. Now, though, I was calmly accepting the facts of our "long fall," because I believed the evidence of my eyes. The marines were taking it in their stride, and taking it big. They did, in fact, love it. I heard a gurgle in someone's throat, and recognized the signal of a fighter's joy in fighting.

The Coliseum was in an uproar. I don't think anybody was sitting down. It reminded me—because it was so little different, except in time and place—of Madison Square Garden when two top-flight heavyweights, evenly matched, were trying to see which could batter the other more, which could knock the face of the other into the worse mess.

The same sound was there in the roar of the crowd.

The same people were there.

I tried to make out what they were shouting. It had a familiar sound. Of course—it was Latin! Now I had to cudgel my brain, go back into my own past—in which, in the circumstance, I had a swell chance of getting mixed up beyond all possibility of unraveling the confusion—to recall what I had studied in school.

"Omnia Gallia est divisa in partes tres!"

MAYBE the emergency keened my brain, for certainly even in my best days, studying Latin, I had never been good enough to speak it, nor had I been able to understand it when the professor spoke what he insisted was Latin. But now I was getting the drift, as though the time and place into which I had "fallen" had—well, sort of rubbed off on me a bit. I could smell the perfume of the women. I spotted several whom I thought it would be swell to know.

And even as the marines fired, worked their bolts, fired again, several of them were commenting on specimens of feminine pulchritude they had spotted in the stands, and speculating on their chances for dates if they were lucky enough to make every shot a bull's-eye, and their ammunition held out. Ammunition was a worry to me, too, because we had stepped into this series of messes without draping a couple of bandoleers of ammunition over each leatherneck shoulder. Each of us had five cartridges, and maybe a clip or two tucked into a pants pocket. The going might be tough if we kept on going back.

In imagination I was already going back, and envisioning my marines at bay against a charge of mammoths, cave-bear or saber-tooth tigers. There was no telling what might happen. And that we could be killed by these creatures we were encountering I knew very well. I

didn't understand how all this came about, but I didn't doubt it. To this day I don't doubt a bit of it, though I can't explain it to my own satisfaction.

There were now some ten of the great cats left. The path of their furious charge was strewn with dead animals. The men and women in the stands were staring at them, pop-eyed. I wondered why, when confronted with the racket we made, the Romans didn't stampede for the exits. I soon understood why, however. They knew Nero and feared him more than anything else—and Nero himself didn't seem afraid. By right of precedence he should leave the Coliseum before anybody else did. He hadn't gone. Therefore the others had to stay—and when nothing happened, they were becoming glad they *had* stayed.

I could see Nero expand. He was giving his people a show, proving his greatness. That he couldn't possibly have any idea where we came from, or what we were, didn't detract from the kudos he was getting. His people didn't know that he didn't know! If he were a smart fellow he'd never tell them.

Pow! Pow! Pow! Each shot did its work—but it also reduced the fighting strength of the leathernecks.

Each man had his web belt, and each belt carried the usual bayonet in a scabbard. If only—if only—but I wouldn't have sent my worst enemy against such ferocious animals with bayonets. They would be like flyswatters.

"Who'll take on the last few with bayonets?" That was Cameron talking.

I whirled on him. "They haven't a chance, Cameron," I said. "Not if the bayonets were four times as long."

"You've trained them all, sir," he said. "And Lord knows when we'll get a chance at more ammunition. What else can we do?"

He was right. This wasn't a comic opera, but fact. He was using good sense.

"Stand up," I said. "Fix bayonets!"

Cold, shining steel flashed in the sun. From the stands rose great "Ahs" of amazement. We formed a kind of semi-circle, facing the last of the charging beasts. All this takes time in the telling, yet I was sure that just a few seconds had passed since Popoff had downed the first great cat. Split seconds separated us from the charging beasts—which traveled faster than anything else, I imagine, in the world at that time.

Boy, did my heart swell with pride when those marines snicked their bayonets home, and took the position of "charge bayonets!" The great beasts kept right on coming.

THE FIRST ONE to reach us jumped high. Its forepaws were spread to show gleaming talons that looked like razors. Its eyes were red with fury, its tongue a streak of flame. The creature was a tigress, the biggest I had ever seen. Strange that I should forget the name of the man she singled out for attack. Not strange, either, because of the shock I went through back at Santo Domingo; when I almost lost my commission by sentence of a general court-martial because I couldn't explain satisfactorily what had become of that man on a simple "routine patrol" into the Bahorucos! I've tried for years, off and on, but his name escapes me. I can hear his voice, see his stance as that ghastly creature dropped upon him with her tail lashing, and her forepaws spread.

I watched it all, and I was numb as I watched. He made a mistake, I think, in switching to the "short point" at the last, because it shortened the distance between him and those ghastly claws. The "short point" was used for a stab to the throat, and he used it for that. His bayonet buried itself to the tang in the throat of the tigress. But her talons struck him in the back. Their con-

vulsive movement ripped his back from hip to skull as though the tigress had tried to take his skin off like a shirt.

He was dead before he struck the ground, with the weight of the threshing tigress atop him. Two men closed on her, stabbing, stabbing, reddening their blades with her blood. But it did the man no good, and I knew it. It proved what I had instinctively known—that we could be killed by what we encountered in the course of our “long fall.”

We all saw it at once. Maybe the cats began to get some idea that they were not invincible against us, because they made the one mistake a bayonet man can make. They didn’t charge right in. They halted, roaring, snorting, screaming, to thrust and parry with their forepaws, whereas marines were taught never to pause to parry, but to contact, keep on going, run the opponent through.

Oh, they all got scratches, but private—there, I almost named him, but I can’t, blast it!—Whatever-His-Name-Was was the only victim. And he looked ghastly. Two of the great cats drew back, turned and ran.

“Popoff!” I snapped.

But he was already kneeling, bringing his rifle into line. Two bullets were not too much to pay for prestige where we would certainly need it. The Springfield barked. One of the lions—both were males—suddenly dropped into the dust of the arena as though his legs had turned to rubber under him. His nose slid along in the dust. His mane flopped over his twisted head. His tail, all limp, swung over his back, slid off it, to the right, to the ground.

The other one went almost the same way.

“You didn’t send your bullets into left eyes that time, Popoff,” I said grimly.

“No, sir,” he said, happily, “but I’ll bet they came *out* so close to the left

eyes that neither one of those pussy cats *has* a left eye!”

A flock of frightened men—slaves, I suppose, for some of them were blacks, Nubians—came into the arena to clear away the mess we had made. They rolled the great cat off—no. I still can’t get the name! It’s most irritating!—the dead man, and carried him away gently. Their eyes were popping as they stared down at him. They fingered his bloody uniform. One man picked up his campaign hat, put it on—and the effect was funny to the point of being utterly absurd.

SOMEONE shouted to us, pointed. The Emperor was beckoning imperiously. I didn’t know what about, until the man in charge of slaves came up and spoke to no one of us in particular. His Latin was worse even than mine could have been, but I managed to get the drift of what he was about.

“The Emperor wishes to see the leader among you.”

I said I was the leader. The man led the way across the arena. I slipped in spots of blood we had drawn from the great cats. I strutted a bit, for I knew that we had just given those Romans a show like nothing they had ever seen. Parades of gladiators, fights with wild beasts, might be boring to them all, but we’d shown them something they would never forget. Nero would remember it even while watching Rome burn.

I stood below Nero, looking up without fear. The man with me had bowed into the dust.

“Whence are you?” asked the Emperor.

I guessed at the question. After all, it was the obvious one. In halting, execrable Latin—while Nero frowned and looked at men and ladies to his right and left—I said: “I am from the United States of America. These men with me are soldiers of the sea. We come to Your Majesty from the future, wherein

your name stands high among the great of history."

He looked pleased at the last observation. Soldiers of the sea didn't bother him in the least. But United States of America got him down! I didn't see, even then, how it could have failed to do anything else.

"Dare you attempt to make mock of the Caesar?" he demanded. Then he belched loudly, as though thus to blow me out of existence as beneath contempt.

"I mock you not, Your Majesty," I said. "I speak only the truth. I come from a land far away, beyond the great seas, beyond any waters ever sailed by the mightiest of your vessels—"

He raised his hand, his face purple with fury. "Insolent slave!" he said. "Just because you have been lucky, prevailing against our beasts, think not that you can laugh at Nero! I shall furnish you with a fight which will tax even your great knowledge of battle. You see, I give you credit for greatness—as a Nero can afford to do. Tell me, slave, what is the nature of your weapons?"

I started to try to explain, but what was the use? I thought I'd tell him the truth and see where that got me. "They are United States magazine rifles," I said, "model 1903, remodeled 1905. They fire a .30 caliber bullet with a muzzle velocity of 2700 feet per second." Some of this was in Latin—most, of necessity, in English. "The ammunition, most of it," I said hastily, "comes from Rock Island Arsenal!"

Well, he didn't care for it! I thought he was going to have apoplexy, right there in front of everybody. But he managed, finally, to express himself. "Throw them all into the dungeon! Then procure for me the greatest gladiators in the realm. Let these men do without food or water until we have seen them fight again!"

His wave of the hand—a fat hand, an arm that would have disgraced a

mighty washwoman—practically annihilated me. I turned away, went back to my men.

"Sorry, you buzzards," I said, "but I'm afraid that I've put us all in the doghouse. It's the dungeon for us!"

"Which," said Popoff, "undoubtedly gets us out of here—if the future behaves like the past, but makes me wonder where we're going next!"

WE SLUNG our rifles over our shoulders, after rubbing the blood off bayonets by jabbing them into the dirt of the arena and returning them to their scabbards. Slaves surrounded us and pushed us toward a door.

They opened it, pushed us in. The door clanged shut behind us, covering us with impenetrable darkness and heat almost beyond endurance.

"Now where in the hell," said Toy, "do you think we are now? Lieutenant, you're sure leading us a merry chase, but you'll never be able to say we aren't right behind you every step of the way."

A light glowed in the darkness, dead ahead. A man was coming down a flight of steps from somewhere we couldn't see. As the light grew we saw a lot of things.

I saw sweating, huge blocks of stone, fitted together to form a mighty vault. Dust bit at my nostrils. Popoff said: "Great Caesar's ghost!"

No, Popoff wasn't seeing Nero, come down to look us over. He was staring at our visitor, who held a kind of taper high above his head. He stared hopefully toward us through the gloom.

He looked, so help me, like a mummy resurrected! Now, I'm sure he didn't say a word, but this is what it seemed to me, for a moment, that he said: "*It has come to pass, and the great, even I, Hamachis, shall sit in the high place of merit.*"

He stopped, staring at us. His black

eyes missed nothing about us, I was sure.

"Listen, Hamachis," I said, "just what goes on! How did we get here, and just where is *here*?"

He stared at me. Then it came to me that he couldn't possibly understand me, if he were what I thought he was. Yet I had understood him, and he hadn't spoken aloud. So I shut my mouth tightly and said, deep inside me.

"Tell us where we are, Q Hamachis!"

Instantly I had an answer that made no sound. It came from the brain of Hamachis, telepathy I knew at once, and registered on my own brain. *"You have come at last. It has taken me a lifetime to bring you, yet I have always known I would succeed. I am Hamachis, chief of the artisans, designer of the pyramid which encloses this vault!"*

"What pyramid?" I asked, holding my breath.

I got an answer to that, too, instantly; one word: *"Cheops!"*

I turned and told my men. They didn't know what to say. Finally Toy said something that put it about as well as anybody could. "Telepath the mummy, lieutenant, please, and ask him when do we eat?"

IV.

WOULD IT BE straining a point too much—how could it be, after all, since that's how it was?—if I referred to conversations between Hamachis and myself as English speech, when it was in fact unspoken, but a silent "meeting of minds"? I understood him; he understood me. Toy, the pharmacist's mate, got most of it. Popoff got so much as to surprise me, and Cameron got a great deal. But the others had to be told, so now and again I paused to tell them.

I bowed to Hamachis, told him my name—which didn't mean anything to him—whence I had come, and who my

companions were. I had known that the Phoenicians had "marines," but not how far back, really, the soldiers of the sea had gone into history. Hamachis understood perfectly what manner of men we were. I told him I came from a place called the United States. I told him, as well as I could, where the continent of North America was located. It did not surprise him. He knew as much about it as I did—as a matter of fact, a great deal more. But his knowledge was of a time beyond any written knowledge we possessed.

I began to get a real kick out of this conversation. "My guess is, Hamachis," I said, "that you're the daddy of this trip I've taken back into the past. Maybe I'm wrong, but I think we've come to the end of the trail."

Even as I telepathed this—crudely of course, though it scarcely mattered to an adept like Hamachis—I wondered just how he translated my thoughts into his own language. But he had no way of telling me, of course, though he seemed to understand perfectly.

"Yes," he said, "I brought you here. I had to, or I would have been tortured to death. That I would not mind, but my family, in all its branches, would also have been destroyed—and therefore our descendants to the end of time. It has taken me fifty passages of seasons to succeed. And I have probed through every part of the earth with my time-telescope, setting traps in the stream of Time, trying—trying—always trying to catch someone: For fifty passages of seasons I have worked out combinations, setting traps in various lands—all of them connected always, though separated by vast lapses of time, chosen by accident."

"I came here," I said quickly, "or rather all of us came here, from an island in a far sea. We walked through invisible cobwebs——"

His eyes lighted up. He set the taper on a nub of stone, rubbed his gnarled

hands together as he listened. I knew that he knew where that island was, all about it, but never by any name I knew. I know that it was the talk of invisible cobwebs that stirred his enthusiasm.

"Some of the doorways," he said, "give that impression!"

"There was trouble there," I said, "and we were all taken prisoners and thrown——"

"Into a dungeon?" he asked. "Another doorway—mine!"

His interruption startled me, but I nodded.

"Then you had some more trouble with the people you encountered there, because you were beyond their knowledge, and they threw you into yet another dungeon——"

"Yes, but in between——" And I told him of facing Nero, whom he could not possibly know, though he knew where, and what the animals were I mentioned. Because, I suppose, as I named them I saw them distinctly with the eyes of my mind, and so transmitted them to him. And he had some idea of what had happened to us. "In the end he threw us into another dungeon," I went on, "and it was very dark. And then, almost at once, you came to us with light in your hands!"

"Amazing, even to me, who brought it about!" said Hamachis. "I caught you with just three traps in the runway of Time, when I might have been forced to use thousands. I have thousands, you know, scattered all over the world. Unfortunately, looking into the future, I cannot see just where men will be at any given spot in Time, so I have to trust to luck. And in the life of an old man, fifty passages of seasons is a long time."

I could understand that. I was waiting for a question.

"Whence," he asked me, "do you come in Time?"

THE YEAR of Our Lord, 1923, it had been. But of course that meant nothing to him. He'd never heard of Our Lord. How far back in time, from 1923, I asked myself, had the Great Pyramid of Cheops been erected? Five thousand years? Perhaps. What difference would a thousand years make, more or less? Let it stand that Hamachis and I were separated by almost seven thousand years. "I should say," I told him, "that I am seven thousand years in your future. Now, let's get down to cases. Why did you probe for fifty years, trying to grab somebody out of the future?"

"It's rather difficult to explain," he said. "You see, the pyramid was designed as the final resting place of the Great Pharaoh. 'Build for me,' he told his artisans, of whom I am the head, 'a monument that shall last until the end of Time; that shall carry my name far up into the dim and distant future. Let the basis of all knowledge be in the monument. Let everything possible be done to make me great from the day of my death until the Earth falls into ruins.'

"So, I designed the Great Pyramid. In it, if men have the wit to read the facts, I have incorporated vast knowledge. By the Pyramid men may divide the world into quadrants. By it, men may know geometry. By it, men may read the stars, in ages to come, and know the course of the Earth in the heavens. By it, men may ascertain the seasons exactly. By it, men may know the sciences of geometry, trigonometry, navigation, astronomy. By it, men may know the history of a race, for it is set down in the written language of my people."

He wasn't telling me anything I didn't know. I knew, or had been told—I forget which, and it doesn't especially matter now—that lines drawn through the base of the Pyramid, from corner to corner, and extended indefinitely, di-

vided the earth into quadrants. That by one set of lines men knew that the ancients had known of the Tropics of Cancer and Capricorn. From the apex of the Pyramid, men had found, one knew the declination of the Earth, the speed of its flight through space, and around the sun—simply by calculating how closely the apex pointed at a given star in the heavens.

Almost all knowledge, in some manner or another—it made me dizzy to figure out all the combinations even I could think of—could be found in the construction of the Pyramids, in the stories told by their hieroglyphics, their mummies—

Yes, if Hamachis spoke truly, nations of men could profitably spend their lives reading the stories told by the Pyramids.

"But none of this explains *our* presence here, and why we were brought."

He smiled slightly, a bit sadly. "When the Pyramid was completed—and such a vast time it took! But for a prolonged life, given me by our greatest scientists, I should not have seen the beginning, and the end of the building. The Pharaoh called me into his presence and asked me to relate to him what had gone into the Pyramid, of human knowledge. I told him, and proved him my words, and he was pleased. Then he asked me how long the Pyramid would stand. And I told him almost as long as the mountains. That when it threatened to fall, other men, far in the future, in order to preserve so majestic a creation, would put back the rocks which fell. Then he set me a task. Prove this thing you have told me! So said the Pharaoh. I asked him how I might do it, unless it were given me to reach into the far distant future and clutch at human beings there, bring them here, give them the key to what I desired—the Time-telescope—and send them back into their spot in Time. Then have them take either myself or the

Pharaoh, with the aid of the Time-telescope, into the dim future, so that I, or he, could hear of the fame of the Pharaoh on the lips of men!"

"Lord," I said. "What a conception! You've brought us here. We happened merely to be the first fish caught in your Time-traps. Now we go back whence we came, use this Time-telescope, and transport your Pharaoh up into 1923 A. D.?"

"The Pharaoh," he said, "or someone whom he trusts, whose words he will believe. I should like to go myself, and the report I bring back would satisfy the Great One!"

I WHISTLED softly, trying to grasp it. Toy sat down on the floor of the crypt and said: "Cripes!"

It wasn't much of a word, but he put more into it than any combination of words anybody else could possibly think of. Popoff swore, and flailed his arms as though he were freezing, and must warm himself.

Cameron said: "I'd give a *peso* for a good drink of Haitian rum!"

I scarcely knew what to say. "I believe you," I said slowly, "because we have the evidence of our senses to prove it. And I'm frightened. Have you any idea what a furor it would cause for us to appear back where we came from, with an ancient Egyptian in our outfit?"

He smiled slightly. "Yes, I have some idea. I am sure it would be interesting."

An idea occurred to me. "When we go back, will it be by the way we came?"

"That I can't guarantee," he said, "but I think so. Though it's possible you might appear in the proper Time, but in almost any spot on Earth. The Time equation, going and coming, assures you of return to your own Time. But as for the channel—I make no guarantees."

"Good grief," said Toy, "we start into the Bahoruco one afternoon, and ap-

pear in the Andes, the Urals, or on Lake Baikal, the same afternoon! I doubt if people will believe it!"

"I'd like," I said, "to see this Time-telescope of yours."

We all trooped after him as he pressed a nub of rock, and a vast piece of stone moved outward to show us a crypt fitted up as a laboratory that wouldn't one whit have humiliated—as far as I could see—any scientist of my time. Recalling the tale of the burning of the Library of Alexandria, it didn't strike me as strange that this old man, seven thousand years before our time, should have so much of our scientific experimental equipment. He fumbled through his junk, for all the world like an absent-minded professor, and came up with a—with a—with some sort of gadget that looked so light that a baby could have hit himself on the head with it without hurt.

Hamachis tried to explain it to me, and I set down, as nearly as I can, how he explained it:

"I call this a Time-telescope. Time, actually, does not exist. A place, or space, or period in Time is as self-evident as the generally accepted idea that the heavens, including the Earth, are—in their essential elements at least—self-existent. With this instrument I can capture time as a spider captures the insects on which it feeds. I could have reached back into the distant past, as I have reached into the future for you, and brought to me the earliest human beings. But that would not have served my master, the Pharaoh, and I undertake nothing that does not serve him. So I reached into the future, but devised at the same time a telescope that works either forward or backward, so that the person to whom I intrust the second part of this task can take me into the future with him—where, again by the use of the telescope, I can return to this very chamber."

I LISTENED spellbound, with a feeling that this old boy knew things that everybody in my day had forgotten, even as a racial memory. If I only had his knowledge to take back with me! But no, too many lousy conquerors, down the ages, had thought they were smart in destroying the accumulated knowledge of their predecessors, and keeping their subjects in thrall to themselves. They didn't care whether knowledge went on or not, as long as they got what they wanted.

"It is difficult to explain this," said Hamachis, "except by corollaries. Sound, for instance, travels outward from the Earth indefinitely. It is conceivable that man could travel faster than sound, and pick up, as he went, sounds that started long ago—even before he was born. By instrument he could reach out into space and get them, without leaving his own laboratory. Then, take light. It travels at a given rate of speed in the heavens——"

"You know *that*, too?" I ejaculated.
"Of course." He looked surprised. "There are stars so far distant from us that in all the ages their light has not yet reached us. There are stars just being seen, because their light has just reached us. But, by careful calculation of the weight, distribution and balance of the stars—a simple problem in mathematics—which we can see, we know where to look for those we cannot. We can even reach out into space with instruments made by man, and locate light which may not reach the Earth for another billion passages of seasons."

I was getting dizzy here, and so were the others, who had deliberately given up trying. Toy had his hands over his ears—as though they could shut off the "meeting of minds."

"Why should it be startling, then, that an instrument could be made which can reach either forward or backward in Time—any humanly conceivable distance?"

"Sounds O. K.," I said, "but how does it work?"

"It simply telescopes Time," he said, as though that ought to be enough for anybody. He gave it to me. It looked more like a yardstick than anything else, and out of it flowed into me a feeling of almost immeasurable power—wisdom—sensation. I felt—well, as though I were holding in my hands a kind of anchor, from which threads went out in all directions, ending in the Time-traps, scattered over the Earth, and through future Time, so skillfully set by Hamachis, the artisan.

I had once tried to read a learned book on the "Nature of the Physical Universe," and recalled something in it to the effect that the length of a given piece of material could never be accurately measured, since it changed length too swiftly. I wondered if that author had somehow sensed the existence of this Time-telescope.

I gave up trying to understand it. It telescoped Time. I had the proof of that in our presence here. It struck me as being enough. "How," I asked, "do we work it?"

"Scattered through the Pyramid," he said patiently, "are numerous blocks of what look to be stone, but which are foundations of my own construction—foundations into which the Time-telescope will fit. These foundations are studded with precious stones, and covered with scientific writing—all of which is the same: instruction in the use of the Time-telescope. Men, down the ages, will loot the Pyramid. Men down the ages have always looted the repositories of the ages. In your museums—"

"We've got a lot of gadgets from the Pyramids!" I said, excitedly.

"Exactly," said Hamachis. "Find one of those—anywhere in the world, it doesn't matter where, or which one, for there are thousands—and fit this telescope into the groove you will find

for it. Then wait for the period of the year when the apex of this pyramid points most nearly directly at the star whose name is given in the hieroglyphics on the foundation, and so balance foundation and telescope that a line drawn directly through the middle of foundation and telescope will point at the same star—and I will appear before you."

IT SOUNDED screwy, no doubt about that. It still does. But I told him we'd do our best. I meant it, too. I wanted to get back, above all else, and he must have guessed it. If I didn't work things out to suit him, it might be O. K. with me, but not with him. He'd go on setting Time-traps until he died, or caught somebody else—and he'd pass his mission on to others.

He was very patient, though he knew exactly what I had in mind.

I handed the Time-telescope to Cameron. He tucked it into the front of his OD shirt.

"Let's go back the way we came, if it's possible," I said.

"I think it is," said Hamachis. He led us to the door by which we had entered. He opened it. We stepped out—into the Coliseum, where slaves were still dragging out the carcasses of the beasts we had slain. When they saw us they let out an awful howl, but we marched—that's the right word—straight toward the door by which we had entered the arena in the first place.

Nobody tried to stop us. I looked at Cameron. He had taken the Time-telescope out of his shirt, was clutching it in his hand, staring at it as though it hypnotized him. That he should still possess it, in Nero's time, sort of had him going.

We opened that door, and stepped into—

The fortress of Alvarado! Haralson cried out—I never heard so much solid-hunger in a human cry—and started running toward the door by which Ana-

caona had vanished.

"Grab him!" I yelled at Cameron. "We can't leave him behind."

Cameron and Fox and Fenske went after Haralson, caught him. He fought like a tiger, but they dragged him out the big creaking door that still stood open. He was like a crazy man, frothing at the mouth, babbling.

We were within yards of the "invisible curtain of cobwebs," when Alvarado and his men came shrieking after us. Cameron, be it said, still held the Time-telescope.

We pushed through the "curtain." Instantly Alvarado's cries died out behind us. We turned and looked back, and gasped.

There was no fortress, and now we could see all the valley, with the ruins of what *might* have been a caravel within fifty yards of us. Cameron swore softly, stared at the Time-telescope. That telescope, and the fact that—no, I still can't think of the name of the man who was killed by the tigress!—one of our number had been destroyed, were all we had to prove what we had been through.

Haralson was cursing us all. "You've destroyed Anacaona," he said. "I'll never see her again!"

He never did, and for the rest of the time I knew him I never heard him speak a word outside of line of duty. That fact alone should have furnished Cameron the answer, and perhaps me, also.

But it didn't. Cameron clung to the Time-telescope and took it out of the service with him. A permanent officer, I had no time to dig into museums. Cameron, though, came of a wealthy family, and was obsessed by the whole business. He was going to devote his life to finding the rest of the telescope.

HOWEVER, back to 1923—— We entered Enriquillo exactly three hours after we had left it. The people looked

at us as though we were ghosts. Superstition again, though I didn't realize it then.

Many years later I got out of the service myself, to write for a living, and the whole thing came back to me one day when I was trying to find a plot for a story. I knew that Cameron was in New York, and looked him up in the telephone book.

He came right over, carrying the Time-telescope! He was still obsessed by it! We didn't waste much time bridging the years.

"I haven't found the complete answer, lieutenant," he said, as though he had left me but yesterday. "But I'm convinced that this gadget is real, workable, and that we went through what—we went through."

"I'm convinced, too," I said. "I think I have the answer. For ages on end, the wisdom—so-called—of the Egyptians has been regarded as black magic, sorcery, that sort of thing. But black magic didn't build the Pyramids, nor did sorcery! Scientists far in advance of ours did that, you know. Our engineers say that the Pyramids were built by vast numbers of slaves. That big rocks were drawn by manpower up inclines of packed earth, then the earth dug away. That's absurd, Cameron, and you know it! In the first place——"

"It would take ten thousand slaves to pull some of those rocks," he said eagerly, "and how could a mass of people like that work together in any reasonable space?"

"And what kind of rope, cable or whatnot, was strong enough to bear such a strain? Haralson, you know, is the real key."

"How?"

"Had Indian blood in him, Indian heritage—and Indians must have come originally from Asia or Africa. This is guessing, and may be just a parallel. But he spoke of the 'long fall,' as being

'backward down a flight of steps,' and chattered of a 'Time-trap.' Therefore he—"

"Therefore," said Cameron, ghastly disappointment in his face, "Hamachis and his fellows were scientists greater than any we'll have again, maybe, for generations! His—their—knowledge has been lost, save in legends and superstition—"

"But he didn't foresee that *his* knowledge would be lost to the world, and that *our* day, or any day in the future, would have no scientists capable of operating his telescope! So, we've got the telescope, and we can't 'connect' again with Hamachis. He's probably dead now, but will have passed his mission on. After all, *back there*, he is now an extremely old man, probably past a hundred by far!"

And it didn't seem funny, when you knew the answer—if answer it was—to talk thus of a man who, in our time, had been dead some seven thousand years! In *his* time, he was simply fifteen years older, if he still lived.

A look of resolve crossed the face of Cameron.

"There *is* a scientist somewhere," he

said, "who can work it out, or find one of those foundations for me. I'm going to keep going until I find him! Or her!"

"Always bearing in mind," I said, "that your scientist must know, or be able to learn, those things the ancients knew which we of today, because it is beyond our comprehension, call sorcery or black magic. Hamachis was not a sorcerer or magician, but a mighty scientist. Probably the least of his artisans had anyone living today beaten three ways from the jack!"

Cameron left, looking very determined. I hadn't much hope he would succeed in his lifetime or mine.

For where, for instance, in our time, lived any man, or group of men, who could build the Great Pyramid—or even tear it down?

We had stepped through the first "door" by accident, and, lacking the scientific knowledge to search them out, we could not go back, except by accident, through that "door" or any other.

Yet I knew, and Cameron knew, that never in our lives would we step through *any* door without wondering:

"Is *this* the one?" And—it might be!

Captain John West and Dr. von Thiel's expedition
in reference to

THE CERES AFFAIR

by Kent Casey

having been too extended for this issue
will appear in the

OCTOBER ASTOUNDING

ROBOTS RETURN

by Robert Moore Williams



Eight gazed at the
ruins. "What hap-
pened to the build-
ers? When—?
And—could it hap-
pen to us?"

A race of metal beings, their history began with the Original Five who awakened at the shore of a mighty sea. Whence came they? Why—and how—?

AS though sustained by the strength of a dream, the ship floated gracefully, easily, a bare hundred feet above the surface of the planet. Overhead, slightly more than ninety million miles away, a sullen sun retreated down the dark blue sky. Its long rays fretted across the planet, washed from the low, brown hills, glinted from the jumbled mounds in the center of the valley.

The ship turned, slanted down toward the mounds, rose over them, circled, found a spot where the litter was nearly level and snuggled down to rest as though returning home after weary years spent between the stars.

Hissing from the pressure of air rushing inward, a forward lock opened.

Nine stood in the lock, staring from never-blinking eyes across the landscape—a fixed, sombre gaze. Hungrily, his eyes pried among the jumbled masonry, the great blocks of white stone stained a dirty brown in places, the piles of red clay in which grass was reluctantly growing. Five, perhaps ten miles around, the piles circled, then gradually leveled off toward the low brown hills.

Behind him a voice whispered, asking a question.

"It is the same as all the others," his answer went, though the grim line of the mouth did not move. "Silence, and the wreckage of a mighty city. But nothing lives here now. The inhabitants are gone."

For a second there was silence, and then a third voice whispered. "Just as I said. We are only wasting time here. It is true that once some kind of a race lived on this planet—but certainly they were never intelligent enough to have been our ancestors."

Nine, in the lock, sighed softly. "Seven, you must remember that we have not made a complete investigation. You must also remember that we have absolutely no knowledge of our ancestors—even to whether or not they actu-

ally existed. Our records are complete for eight thousand years, but they do not go back beyond the time when the Original Five awoke, finding themselves lying on the edge of the sea, with no knowledge of how they came to be there. Perhaps they were a special creation, for they possessed great intelligence, speedily adapting the planet to their needs, forging and constructing others to help them. Perhaps they had come there, in a ship that had sunk in the sea, from some other planet. But we have never been able to solve the problem."

Eight, silent after his first question, pressed forward, stared over Nine's shoulder.

"I am perfectly familiar with the history of our race." The edge of Seven's thinking was clear over the radio beam. "The point I make is that the little life we have seen on this planet—and little enough we have seen—has been organic, a mess of chemicals. Animals, eating each other, eating grass—Pah! I want no ancestors like that."

SLOWLY, EIGHT shook his head, the ripple of interwoven metal strands winking in the light. As if he had not heard the bickering of Seven and Nine he spoke. "For a minute, as I stood here, it seemed to me that I had been on this spot before. The low hills circling a city—Only the city has changed, and over there"—he pointed toward the east—"it seems there should be a lake, or an inlet from the ocean. But no—no—I must be mistaken." He paused, and the fixed gleam in his eyes held a touch of awe. "I spoke—I used the vocal apparatus—Now I wonder why I did that?"

"So do I," Seven's answer rasped. "You used the vocal apparatus when the radio beam is much better. I have never understood why we should equip ourselves with cumbersome apparatus for making and hearing sounds when we

have a much better method of communication."

"Because." Eight answered. "Because we have always had them. The Original Five had them. I do not know why they had them, for they also had the radio beam. Perhaps they had a use for them, though what that use could have been— At any rate, we have retained them. Perhaps, some day, we will discover a use for them."

"Bah!" Seven snorted. "You are one of those inexplicable dreamers. It seems that no matter how carefully we construct the brain substance, we always get a few freaks who are unwilling to face reality, who are not sufficient in themselves, but who hunger for some day that is past—a day that never had existence. I have no sympathy with you, nor any sympathy with the Council that sent us here on this wild exploration."

"But," Nine protested, "the Council could not ignore the evidence of the old star map. The Original Five had that map, but we have never understood it, probably never would have understood it if our newly perfected telescopes had not revealed this system to us— nine planets circling a sun, the third planet a strange double system. Obviously that map is somehow a link with our unknown past."

"Nonsense. I am a realist. I face the future not the past."

"But the future is built of material taken from the past, and how can we build securely when we do not know what our past has been? It is important to us to know whether we are descended from whatever gods there are, or whether we have evolved from some lower form. Come," Nine spoke.

The cunningly twisted strands of metal writhed and Nine stepped lithely from the lock. Eight followed, and after them came Seven, still grumbling.

Three little metal men four and a

half feet tall. Two legs, two arms, two eyes, a nose, a mouth—the last two organs almost valueless survivals. For they did not need food or oxygen. The power of the bursting atom supplied them with energy. Nor did they really need the legs, for their evolution during their eight thousand years had been rapid. Sevei touched the ground, glowed slightly, rose into the air and drifted after his companions. Eight and Nine used their legs. Somehow, to Eight the feel of the ground was good.

They stood on a little hill. Eight's eyes went around the horizon. The metal face did not shift or change, no flicker of emotion played over it. But in the myriad of cunning photo-cells that were the eyes, hungry lights appeared to reflect the thinking that went on in the brain substance behind.

"It's larger—larger than it looked from the air," Nine spoke, his vocal apparatus biting at the words, yet somehow reflecting the awe he felt.

"Yes," Eight answered. "All this litter that we see, all these mounds—and some of them are hundreds of feet high—are all that is left of some mighty city. Miles and miles and miles around, it stretches. How much work must have gone into it? How long must it have taken in the building? Centuries, perhaps hundreds of centuries, some race lived here, dreamed here, and dreaming built of clay and stone and steel and glass. I wonder—if they COULD have been our ancestors, our unknown forebears?"

"Nonsense!" Seven blurted.

EIGHT STIRRED, his eyes glinting uneasily as he glanced at Seven. "Perhaps it is not nonsense. I have the feeling, have had it ever since we sighted this system from the void—nine little planets clustering around a mother sun—that this is—home." His voice lingered over the word, caressed it.

"Home!" Seven echoed. "We have no meaning for the word. We are at home anywhere. And as for feeling, we have even less meaning for that word. Feeling is not logic," he finished, as if that settled everything.

"Perhaps logic has no meaning for that word," Eight retorted. "But remember that our minds are constructed according to the ancient pattern—and who knows that feeling was not a part of that pattern, a part that has come down to us?"

"I remember only that we are Robots. I do not know or care about our origin. Only the future has meaning, the future in which we shall tread the paths beyond the stars."

"Robots!" Eight answered. "I even wonder where we got that name for ourselves."

"It was the name the Original Five had for themselves, just as they had a language."

"But why, among a myriad of possible sounds, should they have selected that one as their name?"

"Because—" Seven was suddenly silent. Eight felt the perturbed pulse of his thinking. Seven was trying to explain to himself why their name should be what it was. He was having a hard time doing it. The answer, somehow, went beyond the bounds of logic. Or was there no answer? But that was not logical either. There had to be an answer, a reason. Seven stirred uneasily, eyed his companions. Abruptly he lowered himself to the ground, shutting off the power that enabled him to bend gravity, as if he wanted the feel of the ground under his feet. He followed Nine over the rubble, and he used his legs.

Eight said nothing.

"What do you suppose this race looked like?" Seven awkwardly voiced the question.

Eight, gazing at the ruins, voiced the

question that had been on his mind. "What happened to them? Could it happen to us?"

Seven and Nine stared at him. Seven's hand went to the heat gun swinging at his belt. Nine twisted his eyes away.

"It couldn't happen to us," Seven said flatly.

"I—hope not," Eight answered. "But something happened to the race that was here, and perhaps—"

"There is work to be done," Nine interrupted. "We must examine every inch of this area. Perhaps we may find the rusted bodies of the former inhabitants. At first, I had hoped we would find them alive, but after seeing all those deserted cities, I am afraid we will find no living intelligence. But it may be we will find records."

SLOWLY, under the unwinking sun overhead, they pressed forward among the ruins, Nine in the lead, then Eight, then Seven. Around them the air, stirred by the pressure of an unknown force, moved restlessly. A wind went with them, as though it, too, quested among tumbled masonry and piles of brick dust for some friend of the long-gone past. Silently, the wind went among the haunted débris. Eight felt it passing, a force touching him with a thousand invisible fingers, a force that could not be seen but only felt.

Eight stared at the ruins, wondering what manner of creatures had once moved among them. The rusted bones of the steel framework of buildings, steel that crumbled at the touch, casing stones upended, the greenish color of corrosion on copper. He tried to imagine the millions of inhabitants going about this city. He saw their glistening metal bodies moving along the streets, floating upward beside the bulk of the buildings. He saw them bringing stone and forging steel, creating a city under that yellow sun. And at night, he saw them

looking up at the stars, at that strange dead satellite hovering in the black sky. He wondered if they had ever visited that satellite. They must have visited it, he decided, if not in reality, then in dreams. And possibly the stars beyond. For the towers of their cities had pointed at the stars.

Little metal men. Slowly Eight's imagination failed him. Somehow he could not populate this silent city with little metal men. He shook his head. He could see the dream, but not the dreamers.

Nine stood in front of a pile of masonry. The rains, the heat of summer, the cold of uncounted winters, had brought down the stones from the top. Nine stared sombrely at the dark opening between the tumbled blocks. He spoke. "I'm going in there."

Seven and Eight followed.

Darkness folded in around them—a stirring, whispering darkness. A beam of light flashed from Nine's forehead, smashed against the darkness, illuminated the walls of what looked like a tunnel.

Under their feet the dust exploded in little gray clouds. Abruptly the tunnel widened into a circle with three other arteries branching out. Broad doors opened in the arteries, doors that now were closed. Staring, Nine pushed against one of the doors, and it crumbled with the pressure, opened into a small room that was totally bare. Nine stepped into it, and the floor crumbled. He shot down into gloom, but instantly his descent slowed as he flicked on the device that bent gravity. He hesitated, then allowed himself to float down into the darkness. His voice whispered over the radio beam and Seven and Eight followed him.

Nine looked up at them as they came down. "That little room was used to carry the former inhabitants up into the building. See, there is the mechanism. Whoever they were, they did not know

how to control gravity or they would not have needed this device."

Neither Eight nor Seven answered, and Nine poked forward into the gloom, the bright beam from his light splashing from dozens of sturdy columns that supported the bulk above. His voice called and Seven and Eight moved toward him.

"Here is a machine," Nine spoke. "Or is it—one of our early life-forms?"

EIGHT STARED at the rust-flecked wheels, the crumbling, corroded bulk of the motor housings, the gears falling away into ruin. This, a robot—! He rebelled at the thought. Yet it was hard to know where mechanism left off and robot began. The dividing line was thin. You took inanimate metal and the pressure of exploding force; you worked the metal into a thousand different parts and you confined the force; you added a brain that was in itself a force-field capable of receiving and retaining impressions—and you had a robot. You left out the brain—and you had a machine.

Seven, prying among the mechanism, whispered. "It is one of our primitive life-forms—one of the early upward steps. All the fundamentals of robot construction are here. Wheels turn, work is done."

"No," Eight shook his head. "A robot is more than that. This—is only a machine, unintelligently carrying out reactions its nature set for it. I don't know what those reactions could have been, but I am certain it was not a robot. It was fixed in this place, for one thing, and, for another, I see no signs of brain control."

"A robot is a machine," Seven answered. "A logical machine. There is no doubt about it. Perhaps the control was in some other part of the building."

Nine stirred protestingly. "I—I am inclined to agree with Eight. See, this was only a pump, designed to force wa-

ter, or some other liquid, through the building. Here is the pressure chamber, and this, I think, was a crude electric motor. But it was only a machine."

"We, ourselves, are only highly developed machines," Seven persisted. "Our operation can be explained purely in terms of mechanics. When you attempt to make us more than machines, you become illogical. True, this is a machine. It is also a primitive robot form, for the two terms mean the same thing. There are many links missing between it and us, but perhaps we may find those links—"

"But how?" Eight asked, "In the beginning how could lifeless, dead metal build itself into the first machine?"

Seven started to answer, hesitated, stared at Eight and then his gaze wandered off into the gloom of this cavern. His light smashed into the darkness, drove a clean channel through the murk, yet always the darkness crept in around the edges of the beam, and always, when the light moved, the darkness came back.

"I—I don't know the answer to that," Seven spoke. "Perhaps the Universe was different millions of years ago. But I don't know. Nobody knows. However, we have found one link in the chain. Maybe we will find others."

Eight kept his thinking to himself. There was little to be gained in disputing Seven. And, after all, Eight saw that Seven was right. Or partly right. Robots *were* machines, fundamentally. Yet they were something more than machines. Machines could not dream. In Eight's mind was the wild wonder—where had robots acquired their ability to dream? To what did that ability point?

Eight did not speak. He followed Seven and Nine. He watched, and thought.

They went out of the basement, went back to the floor where they had entered, forced their way up through the silent building. Dust, and furniture that

became dust when they touched it, and corroded metal, were in the rooms above, but of the race that had lived there they found no sign.

ON THROUGH the city they went. Seven crowded exultantly over the wreck of a huge bulk that had turned on its side. An engine, with eight huge driving wheels, and Seven, digging in the dust, uncovered the remnants of the track on which the wheels had run.

"Another link," Seven gloated. "A higher form, possessing the ability to move."

"But not to think," Nine still protested. "It ran on a track. There must have been another, separate intelligence guiding it."

"What of it? Perhaps so—perhaps not. Perhaps the intelligence that guided it was the final robot form." Again Seven suddenly ceased talking, and again Eight could feel the pulse of his troubled thinking. Final robot form—

"There was another, totally different life-form, here," Eight spoke slowly, marshalling his vague thoughts. "A life-form that created and used these machines. But that life has vanished, utterly, leaving no trace of itself, except the ruins of its cities, the wreckage of its machines."

"But what?" Nine gulped.

"What could have destroyed it? I have no idea. Only vaguely can I sense its existence, through the evidence that it once shaped a world to meet its needs. I have seen nothing that will give me a clue to its nature—or its death. Perhaps a new form of corrosion developed, destroying it. Perhaps— But I can't see the answer."

They moved on through the ruins. The slow sun dropped down toward the horizon. The silent wind, searching among the haunted ruins, went with them.

"Look!" Nine called.

They stood in an open space in front

of a squat metallic structure that had resisted the rain and the snow. But Nine was not pointing at the building. He moved forward, bent over an object half buried in the mould.

Seven gasped. "A robot. Almost an exact model of us. Here, at last, is final proof!"

Eagerly they bent down, scraping away the soil. Quickly, they uncovered the figure. Perhaps ten feet tall, it was more than twice their size. Eight saw it was a robot. Seven had been right, after all, and here was proof. Those machines had somehow managed to develop intelligence and to evolve into sentient beings.

Somehow the crude ore had shaped and forged itself.

And yet this figure differed from the true robot form. Eight saw the difference as they uncovered it. The hopes rising in his mind failed.

"No—it isn't one of us. It's only a statue."

Cast of solid metal, covered by a thin film of corrosion, the statue lay, its feet still attached to a part of the pedestal that had served as a base from which, in some long-gone time, it had toppled. Eight stared at it, not heeding Seven's thinking which came over the radio beam. Seven was insisting that even if it was a statue—a lifeless thing—the form showed that robots had developed here. Otherwise they would not have made a statue in this shape.

Eight recognized the logic of Seven's statement, but the sight of the statue stirred again those vague rebellious thoughts, and in his mind was the feeling that the statue represented something more, that it was more than a replica of form—that it was the embodiment of an idea. But what that idea was, he could not grasp. Slender and graceful, yet with the suggestion of strength, it lay on the ground, a fallen god with head uplifted and arm outstretched. Eight's thinking became clearer. Yes, it was

a fallen god, or the representation of a fallen god, and his mind went back to the builder, the designer, the artist who had dreamed of this figure and had then created in metal a figure adequate to his dreaming. The artist was gone, the statue had fallen. Eight wondered about the dream—

HIS TURGID thinking burst into clarity like a jet of suddenly spouting water. Ever since he had seen this world from afar, especially since he had seen the wreckage of all those mighty cities, he had wondered about the dream of the race that had lived and built here. The fate of the race had never saddened him: all things rusted into ruin eventually, all material things, all logical things. Only a dream might achieve immortality, only a dream could start in slime and go onward to the end of Time. But the dream of this race—whatever that dream had been—appeared to have died. Some catastrophe had overtaken them before they had grown strong enough to forge their dream into an immortal shape. Eight sighed, and the photo-cells that were his eyes lost luster.

He did not notice that Seven and Nine had left him, were forcing an entrance into the building, until Nine's sharp call brought him to his feet.

There was only one large room, Eight saw. It had been a laboratory or a workshop. Benches, machinery, tools, were crumbling, just as everything else on this planet was crumbling, just as the dream of the race had crumbled—

Nine's voice, heavy with awe, echoed through the room.

"I—I can read it! It's our language!"

The written language of the robots, here on this forgotten planet circling an insignificant sun in a lost corner of the Universe! Eight felt the trembling pulse of currents flowing in his mind. They had found their past; they had found their ancestors. All the other evidence could be explained away, but not this.

Ancestors, forebears, those who had gone before, those who had labored to build for the benefit of some unknown descendant. Had the machine, the lever and the wheel somehow been their forebears? Or had there been an alien form preceding the machine?

A metal plate, inches thick, supported on heavy metal pillars. A tough metal, almost completely rust-resistant.

Now Man dies. A mutant bacteriophage, vicious beyond imagination, is attacking, eating, destroying all living cells, even to dead animal matter.

There is no hope of escape on Earth. The only hope is to flee from Earth. Tomorrow we blast our first rocket ship off for Mars, ourselves in suspended animation to withstand the acceleration, the ship manned by Thoradson's robots.

It may be we shall live again. It may be we shall die.

We go, and may God go with us.

Thus the record ended. Nine's raspy voice faded, and for a second the echoes came back from the dark corners of the room. Then there was silence. Seven shifted his feet.

"Man," he spoke. "Man. That is a word for which we have no meaning."

"Perhaps," Eight spoke softly, "perhaps it was the name of the life-form that created us."

SEVEN DID NOT answer, and Nine, too, was silent. A wind came into the room, moved restlessly, and went out again. The silence held. Seven stared at the metal plate, picking out the words one by one.

"It must be you are right," he said. "See, they use the word—robot." Wonder grew in his voice, and then disgust mingled with the wonder. "An organism—an animal— Yet obviously they must have created us, used us as slaves. They manned their ship with robots."

Eight stirred but said nothing. There was nothing to say.

"That," Nine whispered, "is why we are unable to find a link between the

machine and us. They developed the machine, used it. They provided the intelligence. Finally they built machines with some kind of intelligence. It must have been late in their history, and they built very few of them. Perhaps they were afraid. There are so many links missing it is hard to know. But certainly, in a sense, they were our ancestors—"

"Yes," Eight agreed. "In a sense that seems—"

"But they started for a near-by planet," Seven protested. "Our sun is light-years distant. How did they ever get there?"

"They may have missed their aim. Or perhaps the robots rebelled and took the ship elsewhere, and in landing smashed it, only five of them managing to escape."

"I don't believe that," Seven said. "You have no proof of it."

"No," Eight admitted. "No. We don't even know what happened to the men on the ship."

They stood again outside the building, three little metal men. Out yonder in the west the sun was dipping below the horizon. A soft dusk was coming down, hiding the barren world, and still the lonely wind was stirring in the shadows.

Eight saw the statue lying on the ground and vague thoughts stirred within his mind. "They may have eaten grass," he said. "They may have eaten the flesh of other animals; they may have been weaklings; they may have arisen out of slime, but somehow I think there was something fine about them. For they dreamed, and even if they died—"

The robot bent over. Tiny, ageless, atom-fed motors within him surged with an endless power. The robot lifted the dream of an age-dead man and set the statue back on its feet.

The three returned to their ship, and it lifted, following its path out to the stars. The proud, blind eyes of a forgotten statue seemed to follow it.



I guess zero equals infinity where parallel lines meet.

Dear Mr. Campbell:

Well I see your ship of science and fiction is traveling high, wide and handsome, picking up momentum as it goes. And do I like heavily illustrated articles with extensive captions? Do I like strawberry short cake? And the rest of them? I do—emphatically! What good is an illustration without an explanation? Where this explanation comes in the article, one usually has to shuttle back and forth between pages a couple of dozen times before the illustration does him any good. By that time the magazine is "all wore out an' the pages gettin' lost." My idea of a good time would be to have all the article put under illustrations. In other words no illustration for each paragraph.

But I mean illustration—not one of those things that your "artists" create on the morning after the night before. (The ones dealing with science articles excepted.) I see Brown is up to his old tricks again, distorting the story to fit his own somewhat warped, I'm inclined to believe, imagination. I'll certainly be glad to see another one of your mutant covers come out again. Why not try Schaeferman on the next cover in this series? He's the best illustrator you have.

Much as I like to criticize your interior and exterior decorators, I'm really writing this letter to compliment you on two items, that I've been waiting for. One is the caption over the letters you publish in the Brass Tacks and Science Discussions. I've always maintained, out loud or otherwise, that the editor, if he was in a position to do so, should comment on each letter to start the ball a-rolling on the argumentative side if there be one. It should either start it rolling or stop the subject dead, one of the two. Too, there's always a humorous side to the thing. There is nothing I like better than a good sound poke at a guy whether it be me or somebody else. Generally, the remarks on a letter come after it. Mebbe I'm a little cockeyed but I'd rather see the cart before the horse, the answer befor the question. My mind seems to work better that way. My insatiable curiosity might have something to do with it. Anyhow, the second item is the article I find occasionally at the end of a story. I could easily do with scads of them. They relieve the mon-

otony of a bunch of droopy, drippy, drizzlings that some of the stories turn out to be. Most as bad as the illustrators sometimes.

Take for instance "Negative Space." Doggone it, that makes twice inside of a year that old Telina has been saved from the same mambo-jumbo. They ought to have it down pat pretty quick. The first time we lost our moon. Now its all our natural resources. Somebody ought to ring the gong on the third time. No tellin' what'll happen. But why can't we have a hunch of space-stories that deal with some "skilled, brave" astrogator saving his own neck once in a while instead of taxing the resources of fourteen solar systems to save our homeland. They wouldn't be near so absorbed. I'll admit there are a few of them coming out, but these preposterous ones throw you for a set-back.

Another bone I have to pick is all these beautiful dames and handsome be-males that one comes across in the stories. I don't know what the average reader likes along this line, but if all the dames have got to be beautiful I'm sure their main interest doesn't lie in science-fiction. There are other magazines that make a practice of playing up such tripe. Why, cripes—on second thought I don't guess I'd better commit myself any further.

An idle thought came to me recently concerning one of the building stones of the relativity theory, i. e.; parallel lines, if extended far enough will eventually converge—perhaps I should more rightly say meet. But I got to wondering just what would happen to a cube if sittin' along between these parallel lines. Since the definition of parallel lines implies that they are the same distance apart at any two spots, it is evident that if they contract, the measuring stick that is used to measure them contracts too. In other words, if a cube were distant enough from you it would cease to exist! Destruction of energy one might say. Of course, if the cube didn't diminish to nothing in size and remained the same size in respect to us, and, as the measuring stick does decrease in length, the cube must necessarily increase in size *relative* to the measuring stick. When the parallel lines meet, the measuring stick is 0 in length and the cube infinite in size! I feel quite sure the latter isn't so and I've always been taught that energy is indestructible. I would appreciate the correct answer.

That's all for now.—Carroll Auvil, Box 166, Mineral, Wash.



"Son, meet my best and oldest friend"

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CITY & STATE

A "short" Treatise on Light, including theory of Logic—by J. R. Feeney.

Dear Mr. Campbell:

Herewith a criticism of a criticism, and a plea to critics to be more explicit, to think, to explain, or else not to criticize. When a Discussoiner makes an erroneous statement he needs enlightening, not a barrage of erroneous contradictions which serve no greater end than to get the critic in print. The criticism I'm criticizing is no worse or better than many another—it is merely shorter. Its length makes it possible to consider each part as it stands without removing it from its context.

"In answer to Mr. Renner's contention about Light in the March issue, I should like to give my opinion."

In criticism of Mr. Wooding's answer to Mr. Renner's contention, I would like to act as heckler.

"I believe a perusal of the texts written by any of the better known physicists would reveal the fact."

Fact? Do scientists deal in facts or in probabilities? Is the theory of relativity a fact?

"that the speed of light is absolute—"

Isn't the highest observed speed of light, than which nothing faster has yet been found, considered as an arbitrary standard?

"in fact, according to Einstein."

According to Einstein? Or according to some interpretation of Einstein's mathematics, or maybe, according to some interpretation of some interpretation?

"it is the only absolute thing in the universe."

Thing? Speed is a rate of motion. And aren't all rates relative?

"All other motion is relative. This is generally accepted by physicists."

What is generally accepted by physicists? The relativity of motion, or the absoluteness of the velocity of light?

"Therefore light could not possibly have a speed greater"

Why not? Because "This" is generally accepted by physicists? Is the absoluteness of the velocity of light generally accepted by physicists? And if it should be, does acceptance by physicists constitute proof? And what do you mean by "absolute" anyway?

"that its measured velocity—186,000 miles per second."

Measured? Are you sure the absolute can be measured? Besides, isn't "186,000 miles per second" a term of relative velocity?

"approximately. (However, it can have a lower speed when retarded by a medium such as the atmosphere.)"

If it can have a lower speed, it can, in other words, have more speeds than one. If it can have more speeds than one, who will say it may not (I'm not saying does not) have a potential speed greater than 186,000 m/s? If retardation of the atmosphere can reduce its speed, who may say that its speed in space is not already reduced from its possible potential speed to its observed speed of 186,000 m/s? Reduced by some medium in, or factor of, space of which we know nothing?

"The change in frequency of light takes place independently of its velocity—velocity and frequency are two different things."

To be considered later.

"As evidence of this, we know"

Know? Mankind once "knew" the world was flat; that all electro-magnetic radiation has the same velocity in space.

How then, account for the bending of light that passes through the gravitational field of the sun? Since light has been observed to bend, the waves on the "inside track" of the curve must have slowed up, or else the waves on the "outside track" must have speeded up. If part of the radiation hadn't changed velocity, the observed light couldn't have bent. Your last statement, therefore, must be revised. Dropping the initial phrase, because the statement is no logical support of its antecedent, we revise the statement, thus: It has been observed that all

electro-magnetic radiation TEND to have the same velocity in space.

"Mr. Renner said, 'Such light must have the speed of the object which emits it added to its own speed.'"

For Mr. Renner's benefit, the statement is erroneous.

"But we do not know the speed of the object—except relative to the earth or some other body."

—which not only does not disprove Mr. Renner's statement but is absolutely no help whatsoever in understanding why Mr. Renner's statement is erroneous.

Again for Mr. Renner's benefit:

The speed of light is independent of the speed of its source, because (wouldn't it be foolish, in view of this heckling, to say,—"because the speed of light is absolute.")?

There is no "because," Mr. Renner; it's just so. But I think that I can lead you to understand that it's so. Light is very analogous to sound. When a vibration is set up in a medium, it proceeds in all directions at a velocity determined entirely by the kind of vibration and the nature and density of the medium. Vibrations proceed in waves. If the source is in motion, the peaks of the waves are formed more closely together, in the direction of the source's motion, than they would be if the source were stationary. Likewise, they are farther apart in the opposite direction. Thus, the frequency is higher when the source is moving toward the observer, and lower when the source is receding. This accounts for a phenomenon you can observe and study for yourself. A train approaches with its whistle blowing, and the sound is high in pitch; as it passes, the pitch is at norm; as it recedes, the pitch is lower. If you can't find an obliging train, stand in the middle of the block and listen to the motors of passing cars, or have some friend race his car from one corner to the next with the horn blowing, and listen to the pitch of the horn.

Now after observing this phenomenon, take thought on the matter (and if you do you will be one of the elite among the Discussoiners.) Since the pitch of sound will vary with the direction and speed of its source, we may reason in the following manner. Higher frequency (higher pitch) means shorter wave-length. Therefore, a moving source of vibrations shortens, in the direction of its motion, the wavelength of the vibrations. In other words, it compresses the waves, so to speak, in the direction of its motion. Obviously, then, the speed of a vibration is independent of the speed of its source; because, if its speed were the sum of its natural speed plus the speed of its source, its waves would not be thus compressed.

Now, apply this observation and analysis to light. If the analogy holds, it will follow that the speed of light is also independent of the speed of its source. And astronomical observations give evidence that the analogy does hold. It has been observed that the lights of stars approaching the Solar System and of stars receding from the Solar System, show this same shift in "pitch"—that is, those approaching have shown a shift toward the blue (short wavelength) end of the spectrum, and those receding, toward the red (long wavelength) end. Remember, a ray of light is vibratory, not a collection of particles; it is set up as a wave or group of waves in the "ether," not hurried forth as a bunch of shot from a shotgun.

This, then, shows the reason your statement, as quoted by Mr. Wooding, is erroneous.

But Mr. Wooding: It shows too, that the first statement of your third paragraph is erroneous also. Despite your saying so, the change in frequency of light does not take place independently of its velocity. This change of frequency is entirely dependent upon the velocity of light being independent of the velocity of its source. If the speed of light were dependent on the speed of its source, there would be no change of frequency. Revise your statement to read: "The change in frequency of light takes place because of the independent velocity of light relative to the velocity of its source."

"On the other hand, we do know the speed

of light—and it is an absolute speed."

Inasmuch as the speed of light is dependent upon the nature and density of the medium, upon the influence of gravity, and upon Lord knows what else, how can you say, "we do know the speed of light?" And, in view of the fact that the speed of light is not even constant, as anyone must admit, how can you say it is "absolute"? And what is meant by "absolute," anyway? It can't mean constant, it can't mean invariable, it can't mean independent of all influences. It can only mean that nothing can move at a speed greater than the speed of light. If that is true, then, as I understand the matter, the "speed of light" is a theoretical constant which has nothing really to do with light. It is the limit of velocity attainable by anything known in this physical universe. It is a convenient accident that light happens to attain to that theoretical limit. This theoretical limit was arrived at irrefutably by mathematics—but the catch of it is that the impossibility of building a skyscraper over six hundred feet tall was once also arrived at irrefutably by mathematics. At that time, iron and steel were not on the list of building materials. Figures don't lie, neither do they take into account factors a mathematician has not knowledge of. Without implying any disrespect for his genius as a mathematician, if Einstein himself were to tell me that nothing is capable of moving faster than light, my reply would be a question: "Mr. Einstein," I would ask, "don't you mean that nothing you or I know about can move faster than light, under known conditions?" But I don't think Einstein would tell even himself that nothing can move faster than light. In reading, Mr. Campbell, I might say that there was that certain something about "Men Against the Stars." It "took" with me—J. R. Feeney, 219 N. Mason, Chicago, Ill.

Railroad Tracks Problem.

Dear Mr. Campbell:

I have always been afraid to enter Science Discussions, but this time I can't hold off—in spite of the fear of having the heat-ray turned on me.

First, in answer to Mr. Turner, of Ohio State: I take it, Mr. Turner, that you want the rails laid so that their images on the retina of the eye are parallel; this would give the effect of your second illustration. The condition for this is that any pair of opposite points on the rails should subtend the same angle at the eye. Now the question is: how to lay the rails so that they will fulfill the condition?

The first trouble is that the height of the observer is going to come into it. You will probably not object, Mr. Turner, if I assume that our hero's eye is five feet above ground; it fits in so nicely with the five feet you already have in the problem. With the hero in the middle of the track (he is safe enough, as there are probably no trains equipped to run on this kind of rails) draw a triangle from his eye to the points of the rails on each side of him, and another triangle to the two points a mile away. The triangles are isosceles, and their vertical angles are equal (by definition of the problem); therefore they are similar, and the bases and altitudes are proportional. Therefore the bases of both triangles are equal to their altitudes, and so the rails a mile away are just a little more than a mile apart—about a mile and one-eighth of an inch, to be exact. Similarly, the distance between the rails is always equal to their distance from the hero's eye.

This answers Mr. Turner's question, but leads to some other interesting things. In order to look straight, the rails actually have to be curved! Let's take the more general case, and let the observer's height be h . If we draw coordinate axes from his feet, the width of the track at distance y is $2x$. Using proportional triangles as in the last paragraph, we get the equation for the track to be

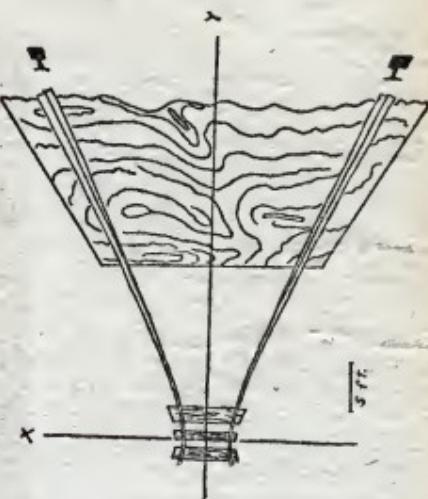
$$\frac{x}{6.25} - \frac{y}{h} = 1,$$

which is the equation of a hyperbola.

While we are at it, we might as well try to make the track to counteract all the perspective

we can. Take the wooden ties, for instance. We will wait to make them look evenly spaced, and of the same width. If the first one is a foot wide, and the spaces are to seem the same width as the ties, the second tie will be 13 inches away and 22 inches wide. The third will be 15½ feet away, and extend to the horizon! Even then, it will seem narrower than the other two. Then, if the rails are to appear in the correct proportion, they will soon have to be an immense size. At one mile, they will be 500 feet high and 150 feet broad, and will be considerably distorted—regular mountain ranges.

I guess that is about all there is to be said about the problem—unless somebody wants to allow for atmospheric refraction or the curvature of the earth. If anybody doubts the math, I am ready to fight him through any number of pages of analytical geometry.—Donald West, Acadia University, Nova Scotia.



The poor fish—he shoulda kept that other thumb!

Dear Mr. Campbell:

Messrs. Clark and McCanna differ a little as to the age of *Pithecanthropus*. Dr. William K. Gregory puts him, and the more completely known Peking Man, *Sinanthropus*, back a little over half a million years. Of course, a generous plus-or-minus allowance should be made with estimates of that sort. *Sinanthropus* is the more important of the two, not only because his skull and skeleton are almost completely known, but because he may have been our direct ancestor, whereas most of all of the other six or seven species of sub-men so far discovered very plainly weren't.

Concerning the rate of evolution of reptiles during the Mesozoic: Estimates by the famous radium-disintegration clock give it a total length of about 100,000,000 years from the end of the Permian to the beginning of the Paleocene, compared with 60,000,000 years from the beginning of the Paleocene to the present. That seems long enough for the dinosaurs to have evolved in an orderly and leisurely fashion. The Paleocene, which has only been intensively investigated in the last couple of decades, wasn't included in the older geologic chronologies. The fauna of the North American Paleocene is interesting to paleontologists, but most time-travelers would find it dull. The giant reptiles had vanished, and mammals were nearly all small and looked remarkably alike. In fact, an almost complete skeleton is necessary to enable one to decide whether a new species from this period should be placed with the clawed carnivores

or the hooved herbivores. The hooved animals of the time had catlike or civetlike appearance, with long tails and five, small clawlike hoofs on each foot. The largest known from this period, *Boryliomysda*, was a grotesque-looking creature the size of a bear, with a small head and massive flat feet on elephantine limbs.

Mr. Trott thinks there must have been civilizations as high as, or higher than, ours in the past, because of the great age of the Earth. Sure, there might have been, but where's the evidence that there were? As for ants and bees having to have their complicated behavior worked out originally by intelligence: Mr. Trott seems to have confused instinct (in the restricted sense in which the term is used in biology) with conditioned reflex. The former is inherent, like the nest-building instinct in birds. The latter is acquired during life, like the tendency of a dog to come when called by name. Evidence that a conditioned reflex, if repeated often enough, can become hereditary, is lacking. The late great Pavlov thought he had discovered such a relationship, but later decided that the descendants of his trained rats learned more quickly than their ancestors, not because they were smarter, but because his methods of teaching them had improved.

Two or more instincts make a behavior-pattern. Apparently behavior-patterns mutate and are inherited in the same way that physical characteristics are. Not are ants and bees the only animals with complicated behavior-patterns; the number of such patterns is in fact enormous. For instance, the much-maligned octopus finds a crevice or cave, and builds a little breastwork of pebbles in front of it, behind which he lurks to pounce on any unwary crab that comes too close. But if he has no pebbles, he'll make his breastwork just as readily of bits of glass. The fact that he can be seen through the glass makes no difference to him.

A certain number of mutations occur all the time under ordinary circumstances; X-rays (or temperatures just below lethal) merely increase their frequency enormously. Whether the mutations that occur in the normal course of events are due to cosmic rays or minute quantities of radioactive metals in ordinary soil, is not known yet. Changes in the normal environment of a species, such as domestication, may alter the direction of evolution of a species by giving certain kinds of mutants advantages which they did not formerly possess, but seem unlikely to increase the frequency of mutation.

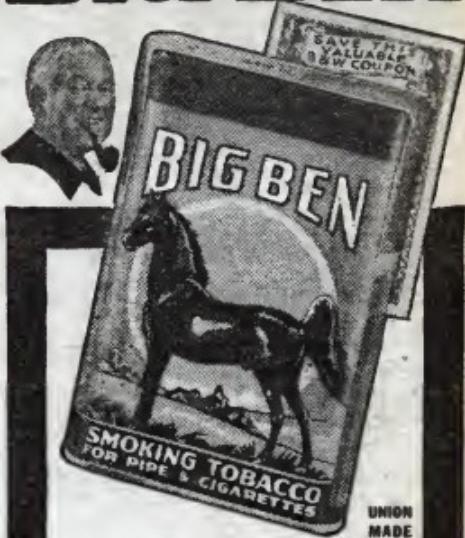
The lung of *Ceratodus*, mentioned in Mr. Ley's excellent article in the June issue is a study in evolution by itself. The lungs of this fish and its relatives seem to have started as mere pockets in the gutlet, such as can be found in the modern Cuscus, an eel-like fish from southern Asia that spends most of its time crawling around on land. The lung-fish belong to the primitive subphylum of fishes with the mellifluous name of *Crossopterygii*, which evolved from the Selachii (sharks and rays, which some scientists don't consider as true fish at all) back in the Silurian. They were and are inhabitants of stagnant fresh water, and were probably forced to develop air-breathing apparatus because of the high CO₂ content of the waters of the Devonian swamp-forests, which were full of decaying vegetable matter.

Instead of developing these outgrowths from the esophagus, the crossopterygians might have done what the land-crabs and land-snails did—develop a pocket inclosing the gills, which must be wet in order to function. The tidier-crabs and periwinkles keep their gills wet by holding water in their gill-pockets, and get along on land fine until the water evaporates. Then they have to go back and refill the pockets. In the true land-crabs and land-snails, the gills have disappeared, and the pockets have become branched, thin-walled, and lined with blood-vessels, so as to be able to take oxygen directly from the air.

Anyway, the crossopterygians used another means to the same end, and got their air-sac which, by some stretch of the imagination, can be called a lung. Some of them stayed where they were, and became the modern lung-fishes. Some returned to deep water and became the sub-class *Neopterygii*, which largely displaced

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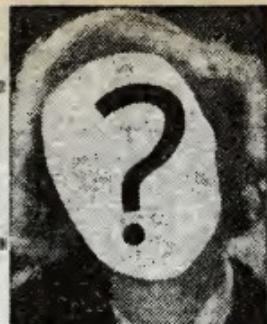


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the selachians and branched out until today they comprise about 90% of the existing genera of fish. They had the advantage of a fully ossified skeleton—the selachians have a skeleton of cartilage only, and the crossopterigians one of mixed cartilage and bone. The connection between the lung and the gutlet was closed off, so that the sac became a hydrostatic organ, the swim-bladder, filled with oxygen secreted by its walls, and so capable of varying the fish's density to equal that of the surrounding water. The selachians lack this sac, and either live on the bottom (like the skates and rays) or rest on it when not swimming (as do the sharks). In the catfishes, the swim-bladder has been further modified into part of the hearing apparatus.

Another branch of the crossopterigians came out on land, and among these forms our own ancestors are to be found. We're fortunate in having the skeleton of an upper Devonian crossopterigian, *Eusthenopteron*, that shows how it was done. This fish looked something like a carp, and probably had a lung like the modern lung-fishes; that's a matter of inference, however, as the soft parts of animals are rarely preserved in fossils. There were still some improvements to be made in the breathing-apparatus, mainly muscles for expanding and contracting the lung, and a connection between the nostrils—originally for smelling only—and the windpipe.

The remarkable thing about this crossopterigian was that the rays in its pectoral and pelvic fins were fused into a mass of bones in which we can see all the limb—and foot-bones of the higher animal—humerus, radius, ulna, carpal, etc. They don't look much like limb-bones, as most of them are as broad as they are long, but that's what they were. They made four lobes projecting from the body, and the normal fin-rays sprouted from the edges of these lobes. The bones were so articulated that the fins could be turned down like a sea-lion's flippers to support the fish on land. Otherwise their power of movement was limited, so that to walk the fish probably had to wriggle its whole body. If you watch the squirming walk of a modern salamander you'll see that these little amphibians haven't improved that feature much. A similar modification of the fins is seen in the modern mudskipper, *Periophthalmodon*. But this amphibian's little fish belongs with the rest of the gobies in the great order *Percomorphia*, which includes the mullets, the basses, and the highly developed mackerel and his super-streamlined relatives the tuna, yellowjack and swordfishes.

But to get back to *Eusthenopteron*: not many changes were required to develop his lobe-fins into the limbs of the Embolomeri, the most primitive amphibia. Some of these amphibia had six, or possibly, seven digits on their feet, but in all the later orders the number is reduced to five. (Personally, I'm sorry they were; six or seven fingers would be useful in typing.) The pelvic bones were gradually extended inward to meet under the belly, and upward to join the sacral vertebrae, forming the rigid, closed pelvic girdle of all modern land-animals. The pectoral or shoulder bones were disconnected from the skull, and the clavicles or collar-bones were extended from them to articulate with the sternum or breast-bone, which they still do in human beings. The pectoral girdle never did close like the pelvic girdle; in most modern ungulates the clavicles have disappeared, leaving the fore-limbs with no articulation with the rest of the skeleton at all! Thus, the modern horse's forelegs are not connected to his skeleton. They are held in place entirely by the thick muscles around the scapula or shoulder-blade.

But I still wish the Embolomeri had hung on to at least one of those extra digits; evidently they didn't know a good thing when they had it. Just think how convenient an extra thumb, projecting from the outside of the palm opposite the present thumb, and opposable with it, would be. Also, we'd probably have a duodecimal number system instead of a decimal one. If we'd learned to count on twelve fingers instead of ten. "There'd be no call for the word 'dozen,'" because twelve would be one "ten," which would be convenient for everybody, not only for people who buy and sell eggs. Look how many more numbers are even divisors of twelve than are of ten!—L. Sprague de Camp, 5 West 68th Street, New York, N. Y.

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Acknowledgment.

Astounding Science-Fiction makes belated—due to necessary time-lapses enforced by printing and shipping time requirements—acknowledgment of a highly interesting afternoon and evening at the First National Science-Fiction Convention, held last Memorial Sunday, May 20, in Newark, N. J. Mr. William Sykora and Samuel Moskowitz, who arranged, gathered and hacked the Convention did a very praiseworthy job of it.

On behalf of Astounding Science-Fiction, I want to thank them both for the work they did, and for the interesting and entertaining Convention they worked up.—The Editor.

One for "Legion of Time".

Dear Editor:

For four weeks I impatiently waited for the May Astounding, and now, on the second Wednesday, I have just finished looking through the issue that I believe is the best you have ever published.

Each month of 1938 has held a surprise, and each issue more outstanding than the preceding one. In January, you announce the new mutant idea, and start a new department, "In Times To Come". In the February issue you revolutionize the cover. With March, we see a new title, so that the public can see that it contains science-fiction. In April, McClary starts a serial that is truly magnificent. Now May is here, and we see three new surprises.

First we see Schneeman as a cover artist, and man, you've got something there! Second we find the "Analytical Laboratory", just what we fans are, for I should say, were asking for—a standing of the best stories of the last issues.

But best of all we find Williamson's "Legion of Time"! Here a new idea is brought forward. Here a foundation for future stories is laid, and here is the pioneer for future mutant stories.

Dr. E. E. Smith's article is as fine as can be expected. With the exception of this article and the "Legion of Time", I have read nothing else.

The "Legion of Time" is what caused this letter. Upon finishing the first part, I immediately took out pen and paper and began to write.

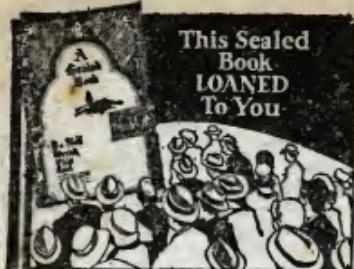
I have no complaints. Since August 1935 I have been reading Astounding regularly, missing no issue and saving all. I have followed the magazine for three years through the good and bad issues, until now you are at the top and will stay there—Leonard Kramer, 228 East Oglethorpe Ave., Savannah, Georgia.

Crows can visualize up to four—and that's Man's limit of visualization. But Man can count—whereby he excels the crow.

Dear Mr. Campbell:

My happy face and Inaccurate typewriter have not been seen since the advent of your editorship even in Science Discussions, let alone that padded cell known as Brass Tacks, so it is about time I expressed my opinion on this "Galactic Patrol" scrap.

I must admit that when I read the first installment I was quite impressed. I was listening to Bruckner's Seventh Symphony at the time, and the parsec-long strides Dr. Smith took through his plot structure seemed to be a perfect mate for the echoing spaces in the cathedral-like C. Minor. This distracting influence removed, however, along with the pictures, which always help to establish a distinctive



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ter (May issue) in regard to the science of rocket mechanics was a notable exception, and a welcome sight to those of us who are mathematically inclined. (Any theory or statement which cannot be backed up by sound mathematics is of little value.)

Fortunately, many authors are beginning to realize the real importance of mathematics, and are creating a type of science-fiction which is true to fact. Fearn had a pretty good inkling of the structure of the universe when he wrote "Mathematica" and "Mathematica Plus." H. E. Smith went him several degrees better, and wrote "Galactic Patrol." His Ph. D. degree was a big help in writing that story. (Too bad more of our authors haven't a better scientific knowledge!) Perhaps Schachner's science is not comparable to Einstein's, but he certainly can write first rate science-fiction. Ditto Fearn and Smith. My vote of preference for the May issue goes to "Island of the Individualists." I also enjoyed the Science article "Catastrophe," by H. H. Smith.

Please give us some science articles on theoretical physics. That article a few issues back, on positrons and negative energy levels is a good example of what I mean. Also, don't forget to include the necessary formulas and equations. Don't worry about getting too technical. The more technical your article are, the better I like 'em, because they're right up my alley.—C. H. Osborne, 5 Hill St., Sheldon Springs, Vermont.

"McClary's good."

Dear Mr. Campbell:

On picking up the June issue of Astounding I was very pleased to find ye-old much wanted sequel to the ancient "Cosmo Trap" by D. L. James. "Philosophers of Stone," is the masterpiece I am referring to.

At last "Jason Sawa Again" has ended, and there is more room for other stories since Charlie Chan and his Yellow Girdle have been conquered and defeated and blah . . . blah . . . blah.

Stop! Don't throw this letter in the waste basket. I haven't begun to compose yet. And another thing; what has happened to Williamson? His "Legion of Time", though a well-written tale, lacks the old technique that his earlier stories possessed. His old stories like "Dead Star Station", and "The Cometeers", were the nectar and cream of science-fiction.

"Three Thousand Years" came to a very exciting climax, and it has set a mark in science-fiction for a long time to come. Thomas McClary concocts the most original plots of all the writers. "Isle of the Golden Swarm" was a fine adventure story, but the plot lacked real science-fiction. The possibilities of a lost race in Africa is likely but the connection between an insect and intelligence is very remote. Norman L. Knight has an exceptionally fine adventure style.

I haven't read "Seeds of the Dark" yet, but it looks like a fine story from the illustration. The idea of having a simple colorplate such as the June plate and an explanation inside the magazine is all right. Half of the time the grotesque monstrosities that fit across the cover have no resemblance to the inside story. Brown is your best cover-artist and Wesso is tops on the interior illustrations.

In Times to Come I see that Clifford Simak is going to write a story for the next issue. It is bound to be a hit. More power to the old writers and how about hearing from Neil Jones? Jones can write undoubtedly the most weird and fantastic surgical sagas and puts Lovecraft to shame.

As for the Analytical Laboratory—I will take them up for this month. They are off! "Three Thousand Years", the favorite is in the lead. And now we have the results. "Three Thousand Years", won by a length and then "Men Against the Stars", follows close behind. Next in order are "Philosophers of Stone", "Below Absolute", "Isle of the Golden Swarm", "Seeds of the Dark", and finally bringing up the rear "The Great Eye", the article by DeWitt Miller. "The Legion of Time" was left at the post.

Now that the Astounding Derby has been run, I'll go to bed and shut up—Mrskine Walker, 2519 Post Street, Jacksonville, Fla.

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Concerning Changes.

Dear Mr. Campbell:

Just about six months ago Astounding was at the depths of its heights. Month after month of "Brass Tackin'" at the seemingly impregnable editorial walls seemed futile when—Bang! Editors changed. Since then the whole outlook of science-fiction has changed.

"Times To Come"—the first step. With that issue the brakes on Astounding's retrograde motion were applied.

The mutant covers—not as basic a change as it was advertised—to be but still an improvement. I don't care so much about the scientific correctness of the cover as I do for the cover itself. We've been getting good covers since then, however—that's what counts.

New name—"Astounding Science-Fiction". By far the biggest improvement of all. Now those who heretofore have not known that such literature exists will have a chance to see what science-fiction is.

The point of this "Brass Tack"; your April editorial. The last few months have proved that Astounding is a democracy. Yes, you have given us nearly all we wanted—Mark Reinsberg, 430 Surf St., Chicago, Ill.

We'll hold that July average! Watch and See.

Dear Editor:

Astounding! That adjective describes perfectly the "topes" in science-fiction. Astounding has been climbing steadily, and every month I keep thinking, "this is too good to be true, there will have to be a flop soon", but there isn't and every issue is better than the last. Astounding is the most neat, trim, colorful magazine on the news stands, besides being the aristocrat of science-fiction.

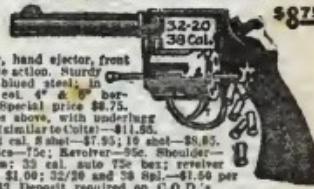
The July cover is the best yet—snappy and interesting, but not gaudy. I think the name "Astounding Science-Fiction" sounds more dignified than "Astounding Stories" and heartily approve of the change. As to the stories, here is my rating:

1. Rule 18: An interesting story but lacking something. A little too vague on the scientific angle. *** Three stars.
2. The Man and the Mirror: A good story living up to the standard set by previous stories very well. **** Four stars.
3. Voyage 13: Not an exceptionally outstanding story, but better than average. ***½ Three and one-half stars.
4. The Secret of the Canals: A very good story. ***½ Three and one-half stars.
5. Good Old Brig: An interesting story. Fairly good. *** Three stars.
6. The Dangerous Dimension: Another very good story. A good scientific angle with plenty of humor. Let's have more of these. **** Four stars.
7. Hotel Cosmos: Another better-than-average story. Very realistic. ***½ Three and one-half stars.

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8. The Legion of Time: Stupendous, superb. I thought "them days were gone forever" from science-fiction but I am glad I was wrong. I could wear out the typewriter splattering stars over this page but the story speaks for itself. Every chapter was better than the last. This story has made history in science-fiction. Ever since I read "He From Procyon" many years ago I have been anxiously awaiting each issue of Astounding, hoping for another as good or better. At last I have found a story which fully lives up to my expectations. The last chapter, especially, was gripping. I know it is a physical impossibility to turn out stories like this every month. If we get one every six months from now on I will be satisfied.

I liked "Language for Time Travelers" very much and "Giant Stars" was also interesting. Those short articles at the end of the last story are very informative and interesting.

I didn't know many Minneapolis went in for science-fiction, but I see by Arden Benson's and Oliver Saari's letter that there are a few. I am afraid Astounding has set a pace with the July issue which it will not be able to keep up with in the future, but I sure hope it does.

I am signing off with a salute to the best issue of Astounding yet, and also a word of thanks to Mr. Campbell for such a fine magazine.—D. L. Dohobs, 2309 Cole Ave., South East, Minneapolis, Minn.

But are there meteors in interstellar space? Arthur McCann does the science shorts.

Dear Mr. Campbell:

I find myself under the painful necessity of pointing out a flaw in Ross Rocklynne's novella, "Then Men and the Mirror." I call it painful because the story was the best this issue.

The flaw I refer to is this. The planet "Cyclops" is airless, (of course it has to be, or the air resistance would spoil Rocklynne's trick of having almost no friction), and therefore the mirror is protected by no coating of air. By what agency then does the mirror protect itself from the incessant bombardment of meteors? It seems to me that it should be so pitted that Colbie and Devereil could easily have walked up the side—if, indeed, they could have slid down in the first place.

However, this is a minor point. Be sure to record me as placing this story first with four and a half stars.

Now that I finally have "Legion of Time" as a whole, I can make a better estimate of its value and I find that I am forced to revise my original estimate of five stars down one-half star. It was an excellent story, with a really wonderful idea, but a little too bloody for my mild nature. (I can't get used to everybody dyling two or three times.)

A steady diet of fantasy such as "Dangerous Dimension" might cloy the appetite, but an occasional little bit spices the magazine and is mighty satisfying. It is the third four-and-a-halfter of the issue, and I assure you that I laughed myself sick over it. Some more from L. Ron Hubbard, please. And don't let any reader kick about its being unscientific. Fantasy is not expected to be scientific. Witness "Wings of the Storm" which I also thought swell.

Kent Casey's effort, "The Good Old Brig" is another good story. I rated it four stars and that makes the best story Casey has contributed so far.

Why is it, Mr. Campbell, that you don't include articles in your Analytical Laboratory? After all, if an article is better than the stories, why not admit it? I would rate McCann's article "Giant Stars" as worthy of mention, for instance. It was certainly interesting. The other article by L. Sprague de Camp was also quite above the average. Try to give us some more novel articles, by which I mean articles based on unusual subjects.

It turns out that I'm usually wrong when I start panning a story. For instance, when I claim that "Three Thousand Years" is terrible, I find that you place it second in the Analytical Laboratory. But I can't help sticking out my neck, so here goes a violent knock at Clifford D. Simak's story, "Rule 18." Aside from its gen-

eral incoherence, I don't think sports and science mix. Off hand, I can recall only two other stories of this type in the two years in which I have been keeping my catalogue: "Ea for the Rajah" and "Positive Inertia". Both were flops.

What's the idea of having the spaceship on the cover hide part of the "Astounding"? Are you going to go *Saturday Evening Post* on us?

Three rousing cheers for Donald G. Burnbill of Toronto for his valiant attack on those favoring mush. When we want science-fiction, we don't want swooning dames, and that goes double. You needn't worry about Miss Evans, Donald, no he-men are for you and if she tries to slap you down, you've got an able (I hope) confederate, and tried auxiliary right here in the person of yours truly. Come on, men, make yourself heard in favor of less love mixed with our science!

Who writes those little articles that appear here and there in the magazine? In the July issue for instance there were two little paragraphs: "Relativity in Metallurgy" and "Beyond that Limit". They are excellent. Give us more of them please.—Isaac Asimov, 174 Windsor Place, Brooklyn, New York.

Serials wanted

Dear Mr. Campbell:

Now that I've sent in my subscription, let's have some more stories like "Galactic Patrol" and "The Legion Of Time". I have read everything Williamson has written except "The Metal Man", and this last story is his best. I like book-length stories, and buy the magazine solely for the serials. There are a few good novelties, namely "Forgetfulness" and "Seeker of Tomorrow", but all serials are tops.—George Crancer, 1731 E. Street, Lincoln, N.C.

Simak has another bell-ringer—"Hunger Death"—out next month.

Dear Mr. Campbell:

I really thought you had reached the peak with the June Astounding. That you had set a standard too high for yourself. Well, I was wrong.

Cover to cover, the July issue stands far above any Astounding—Clayton or Street & Smith—that I have yet read.

The stories left me with a feeling of satisfaction. They were nearly all bell-ringers, which makes it difficult to catalogue my reactions for the "Analytical Lab."

One thing I am sure of, and that is that Clifford D. Simak captures first honors with his "Rule 18." I knew it would be a high-ranker from the start, but the thought-provoking finish clinched first place. If possible, let's hear from him again.

Then there is a battle in which "The Men and the Mirror" (the best story in the Devereil and Colbie series) noses out the conclusion of "Legion of Time" for second place. And—surprise—a three-way tie for fourth place between "Voyage 13" (nicely written, but nothing new) "Secret of the Canals" (treated well, yet lacking something) and "Dangerous Dimension" (novel and humorous). Oh, yes, your science feature "Giant Stars" was very informative and interesting—so was "Language for Time Travelers."

"The Men and the Mirror" is the best story. I appreciate it. Suggestion for cover plate: A good old-fashioned view of Earth as seen from the interior of a spaceship—Mark Reinsberg, 430 Surf Street, Chicago, Illinois.

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